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THE MANAGEMENT OF OBESITY*

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The older physiologists (Pflüger) taught that food in excess of metabolic requirements must inevitably be deposited as fat and that this would be true, particularly, when the excess intake was carbohydrate or fat. Protein stimulated metabolism so that it might be disposed of. According to this teaching, if one's energy exchange each day were 2000 calories, and one were to eat in excess of this amount as little as ninety calories of fat or carbohydrate, this would "stick to the ribs" so to speak, and this amount (ten grams of fat) accumulating day after day would mean in the course of ten years not less than 36,500 grams, or eighty pounds of extra weight. The ninety calories of excess food, causing this monstrous result, would be contained in a small pat of butter or a single chocolate cream of one of the more luxurious varieties.

How is it then that most of us escape adiposity? We do not measure and weigh our intake; if we did, we could hardly attain an accuracy which would be greater than plus or minus 100 calories for the day's allowance. Instead, we depend on our appetites which warn us to stop when we are satisfied or prompt us to eat when food is required. It seems to me that there must be some device other than appetite to regulate this weight, because we continue to be protected against obesity, most of us, even though we hoodwink our appetite by various tricks, such as cocktails and wines with our meals. The whole artistry of cookery, in fact, is developed with the prime object of inducing us to eat more than we ought. Why, then, do we not all grow fat?

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The answer is that the older physiologists overlooked something important, and that food in excess of what we may call the actual requirements is not deposited by people who stay thin.

What happens to it then? This is really the crux of the obesity problem. It is not so difficult to understand why fat people grow fat as it is to explain why all of us do not do likewise.

Diabetic patients that have been educated in the management of their diet, weigh their food and take enough calories to supply their basal metabolism plus a fifty per cent addition. The last is intended to cover the increment to the basal energy exchange from exertion. These patients keep well and strong on such a régime and maintain their weights. In the case of a man of average stature, such a diet will reach 2400 calories, not more. On the other hand, the consumption of food by the patients in our hospital, the help in the hospital, the nurses, and the physicians, averages over 3000 calories of food as purchased, per individual. There is a discrepancy here of from 500 to 800 calories a day. If the diabetic can maintain his weight, and work, on 2400 calories, the interne and nurse could certainly do the same. Therefore, if Pflügers' idea is right our overfed nurses and physicians should be adding to their weight at the rate of about 40 pounds a year. Actually, they are not doing so, for with few exceptions they are remaining thin. Why is this?

The question is asked more easily than answered. There must exist some mechanism whereby extra food, that is, food over and above that necessary for maintenance, is disposed of. Doctor Plummer of the Mayo Clinic calls the process one of incineration, and regards it as a process of metabolism that flows in some channel apart from the flow of the ordinary energy exchanges. Grafe and his co-workers in Rostock and Würtzburg call it luxus consumption. Unfortunately, we have not as yet any experimentally controlled demonstration of luxus consumption in man. It is more easily shown in dogs. One such observation of Grafe and Graham was the following: a well nourished dog weighing 20 kilograms, a very quiet, willing eater, was fasted for three weeks and then for two months received a diet which provided on the average from two to three times its minimal maintenance caloric requirement. The weight and nitrogen lost in the preliminary starvation period were regained in the first seven days and thereafter both remained essentially balanced. The excess food was simply burned. This was indicated by the fact that the metabolism of the dog remained elevated as much as forty per cent for thirty hours after the preceding meal. Incidentally, the important fact is to be noted that this was accomplished with a diet which was relatively low in

nitrogen, although the effect was distinctly greater than would be accounted for by the specific dynamic action of the protein of the food.

Obesity, then, may not be just a matter of excessive eating. Some abnormality, possibly an inadequacy of the mechanism of luxus consumption, must be present to account for the inability to rid the body effectively of excesses of food.

Bernhardt of Berlin, Zondek, and others, postulate the existence in the brain of a center which regulates weight, in a manner analogous to the regulation of temperature, water and blood sugar by well known brain centers. There is considerable evidence to support such a view. Injuries to the brain are sometimes followed by rapid weight gain, and some cases of lethargic encephalitis are succeeded by an obesity which develops rapidly even when the diet is relatively small. The heat centers of the brain are thermostats, so to speak. When the rate of heat production in our bodies increases, as it does with exercise, various cooling mechanisms are brought into play and the body temperature is not affected. When the temperature falls, the peripheral blood vessels are automatically constricted and heat loss is minimized. Injuries of the brain are sometimes accompanied by a disturbance of this regulation and fever or excessively low temperature result. The behavior of body weight is very suggestive of the existence of some such regulation. When a serious illness causes a temporary weight loss, the patient, whether stout or thin, usually regains the lost weight very rapidly once convalescence is under way, but he seldom gains more than he has lost. We hold our weight tenaciously. If, however, disease affects the weight regulating center or centers we may either gain or lose. This is what seems to occur in instances of post-encephalitic obesity and in the equally significant post-encephalitic thinness.

The conclusions reached thus far do not mean that obesity cannot be prevented by suitable dieting, or that obese individuals cannot be reduced by restricting their intake of food. Both results, of course, may be accomplished in all cases, without exception. Man does not exist in defiance of the law of the conservation of energy. If we eat less than enough to meet energy losses, the deficiency must inevitably be made good at the expense of our tissues. The metabolic disturbances discussed affect merely the ability of the body to rid itself of *excess of food* as has been stated. When we have found out what this disturbance is, a treatment of obesity may be discovered which will not involve dieting. Until then we shall have to depend on weighed diets and food tables.

It is not my intention to exclude from consideration the many other

factors which make for or against the deposition of fat. I hope to have made it clear that there can be no gain of weight if the calories in the intake fail to meet those in the output. The *total metabolism* is what we are concerned with, in planning diets for the obese. This is a sum that is made up of the metabolism of rest, the extra energy that arises from muscle work, the energy lost in the digestion, assimilation, and utilization of our meals—the so-called specific dynamic action of food, which F. G. Benedict named "the cost of digestion."

The metabolism of rest, or the basal metabolism, when measured as calories for each square meter of body surface, has been found to be no different in fat and thin subjects. Thus, the basal metabolic rate of fat and thin women is almost identical when computed by square meters of surface, although the heat production for each kilogram of body substance may be fifty per cent greater in the case of the thin subjects (F. G. Benedict). Ample evidence of this has been obtained in many clinics. In simple obesity there is no abnormality of the basal metabolic rate.

The same is true of the majority of the endogenous obesities. These constitute a smaller group of cases in which for one reason or another some endocrine deficiency exists. Thus, after castration in the male, or ovariectomy in the female, we usually encounter a progressive weight gain, but do not find it associated with a depression of the basal metabolic rate. In those cases of obesity characterized by a special deposition of fat around the pelvic girdle, and attributed correctly or incorrectly to deficiency of the pituitary body or to that part of the brain substance which lies directly over the pituitary body, the basal metabolic rate is normal. The only exception found is hypothyroidism, that is, the myxedema of the adult and the cretinism of the child. Here, as must be expected, the heat production is markedly reduced, so that the metabolic rate may be as low as thirth-five or forty per cent below the normal standard. While these patients are generally overweight, they are seldom excessively so, and frequently are actually thin. Their bulkiness is due more to the accumulation of an albuminous edema fluid in the skin and subcutaneous tissues than to fat. In the absence of hypothyroidism, the resting energy exchange of the obese is normal.

The metabolic increment due to excerise varies tremendously from individual to individual, depending upon occupation and habit. Indolent people who despise walking and avoid the sports, as well as those whose work is usually done in a sitting position, use much less energy than people who are on their feet and active. As a general rule, the obese tend to slothfulness. Exceptions exist, however, and the amount of energy

required for a given piece of work, such as walking up a flight of stairs, is considerably more for a fat individual than it is for a thin one. Fat deposits inhibit activity and thus create a vicious circle. Fat is like capital accumulating with compound interest (Müller).

The energy expenditure of the day is not all purposeful, and temperament, that is, emotional stability, plays a large rôle here. The adjectives, "thin" and "nervous," often accompany each other in the description of patients; similarly, "fat" and "phlegmatic" go together. The thin man is fidgety, constantly fretting and worrying about this or that, irritated by trifles and generally dissatisfied with existing conditions. The obese take life with more resigniation and greater calmness. Shakespeare has Caesar say:

> "Let me have men about me that are fat;
> Sleek headed men, and such as sleep o' nights;
> Yond' Cassius has a lean and hungry look;
> He thinks too much: such men are dangerous."

Revolutionists and reformers are often of the Cassius type.

There may be more in this than the translation of nervous energy into purposeless muscular activity with its attendant generation of heat. It is well known that the product of the adrenal gland, epinephrin, has a calorigenic action. Its effect is more rapid and sooner over than that of the secretion of the thyroid, but like thyroxin it accelerates metabolism. It may be that emotional disturbances liberate adrenalin and thus directly affect the heat production. There is considerable evidence that this is true, and that the individual who gains weight readily reacts to stimuli less intensively, that is, with the liberation of less adrenalin, than one who has no such tendencies.

Lastly we have the "cost of digestion"—the specific dynamic action of food—as an additional increment to basal metabolism. What causes this we do not know, but whenever food is eaten and assimilated heat is generated, whether the food swallowed is itself burned or not. Thus, for instance, if we feed 100 grams of glucose to a dog that, by the operative removal of the pancreas, has been made diabetic and unable to utilize glucose, all of this sugar will pass through the dog's body and reappear in the urine. None of it, therefore, has been burned to give heat, yet the rate of the animal's heat production is accelerated. The effect of different foods in this respect is variable. The figures given by Magnus Levy and Zuntz indicate a seventeen per cent increment from protein, nine per cent from starches, and two and one-half per cent from fat.

Roughly it amounts to ten per cent of the twenty-four hours' basal calories for the mixed meals of an average dietary. This, of course, must be added to basal calories and the calories for work, when computing total metabolism. It does not amount to a great deal and yet may be significant. A number of clinical investigators, the first being Jaquet and Swenson, Plaut, and Rolly, found that patients with obesities of the types that seem especially refractory to reduction by dieting, show an absence of this specific dynamic action, and in some cases it has seemed possible to restore the phenomenon by subcutaneous injections of extracts of the pituitary gland. The matter is still disputed and is of doubtful importance (Gantenberg).

I have already indicated that the treatment of obesity is, and must be, dietetic, until we learn more than we now know about the weight regulating mechanism, and that this dietetic management involves the control of calorie intake and output so that the latter will exceed the former. From what has been said, furthermore, it should be clear that we can accomplish reduction either by limiting the food or by increasing the outlets, that is, the expenditures of energy. Actually we do both, but first let us consider expenditures.

The basal metabolism as has been indicated is not abnormal in obesity, therefore anything that we may do to increase it will create an abnormality, namely, hyperthyroidism. This can be done and is done by administering thyroid extracts, but the wisdom of it is very doubtful. In using thyroid we are attempting to cure one disease by creating another, and in the opinion of the majority of physicians whose experience justifies their speaking with authority in this field, thyroid should never be used except in extreme grades of obesity with complications which necessitate rapid reduction, and then only when the patient is in a hospital under continuous observation. Serious harm, in fact, has resulted from the use by the laity of such proprietary reducing "cures" as Marmola, which depend for their efficacy on thyroid.

To add to the increment of muscular exertion is a logical and usually a harmless procedure. It encounters, however, some practical difficulties. Patients with massive obesities may be incapable of physical exertion, or their circulation may be so seriously damaged that to demand much exertion from them may be dangerous. We fail to appreciate sometimes that the increase in body mass that occurs in obesity involves a tremendous addition to the work of the heart. If the weight has been acquired early in life the heart may accommodate itself satisfactorily by hypertrophy, but when this increase in weight occurs during middle age

as so often happens, accommodation may be less satisfactory and actual heart failure may result. The organ may be further handicapped by fat, on account of the space that the latter takes up in the pericardium and in the abdomen; this accumulation pushes upward on the diaphragm and thus diminishes the space in the thorax. The dyspnea on exertion of obese individuals is a symptom of serious import.

Another practical disadvantage of exercising to reduce is that such exercising stimulates the appetite. If the diet is being simultaneously restricted, the resulting discomfort may be unbearable, and if no attention is given to the diet the loss from increased exertion will at once be counterbalanced by an increased intake.

Exercise, therefore, is of no great help in reduction, although in itself, in moderation, it is generally beneficial. Massage, and hydrotherapy (sweating), are similarly of general, rather than of immediate value.

We find ourselves, therefore, leaning heavily on dietetic measures for the treatment of obesity. The intake must be curtailed and the chief problem, then, is how to accomplish this with a minimum of discomfort and without injury. The technique of the procedure is exactly like that which is followed in the management of diabetes. The patient must be trained. Without his intelligent coöperation nothing happens. He also must want to reduce, and he must understand how to do it. It is usually wiser, the ultimate results being better, if weight is lost very gradually. A too rapid reduction may impair strength of heart or nervous system—the patient feels uncomfortable, loses confidence, and stops the treatment. A reduction which requires more time results in establishing new food habits, so that afterwards the patient finds himself able to hold his new weight without conscious effort. In some cases, it seems as though prolonged dieting restores to normal the ability to metabolize food in excess of requirements, that is, the luxus consumption referred to above, so that previously forbidden sweets and fats can be indulged in again without gaining. A weight loss of two pounds a week is as much as should be sought, and one pound is quite enough after the first ten or twenty pounds have vanished.

There is, of course, no specific virtue in any particular food combination, although many so-called reduction diets enjoy a wide popularity. The principle that must guide us, is to reduce the total calories of the intake and at the same time provide adequately of vitamins and proteins. It is wise, perhaps, to overdo, or at least supply the vitamins abundantly, and except in cases complicated with nephritis and hypertension, to supply protein liberally, that is, in amounts approximating 100 grams a

day. This is important in order to provide against loss of body protoplasm, also because of the satiety value of meat, and because of the desired high specific dynamic action of meats which are rich in protein.

Moritz's recommendation of a milk diet has found favor in many sanitaria and is worthy of serious consideration, especially when renal complications exist. The normal weight of the patient is calculated from the height and each kilogram provided with sixteen to seventeen calories, an amount contained in twenty-five cc. of milk. This would mean for an individual of sixty kg. (normal weight), 1020 calories in 1500 cc. of milk which would contain forty-five gms. of protein. "It is a valuable piece of information to know that one may diet an obese patient on a food containing so little protein and not over two-thirds of the body's basal energy requirement without danger of protein loss" (Lusk).

As a general rule, however, it is more satisfactory to provide a more diversified diet with more protein. The total calories may be made more or less arbitrary, and will be subject to change, depending on the rate of weight loss. It is never wise to restrict calories below 1000, and satisfactory results can usually be obtained with diets that provide the patient's basal requirement calculated from the normal weight for his height. With individuals of average height, this amounts to about 1500 calories. A hundred grams of protein will account for 400 calories, leaving the remainder, 1000 calories or more, to be supplied by the fats and carbohydrates.

It is well, as a rule, to forbid all sugar, candy and pastries. It is desirable to create the habit of eating food without sweetening, so that later the new lower weight can be maintained with less conscious effort.

It is well to insist on the inclusion in the day's menu of very liberal portions of the leafy vegetables and the citrous fruits, since these, above all others, provide vitamins, lime and iron, and because both are poor in calories, are bulky and thus satisfying.

Vitamins may play a considerable rôle in the production and maintenance of certain obesities. Experimental rats fed on diets that are deficient in vitamin B show a lowering of their basal metabolic rate and the same is probably true for man. An excess of B seems to be without effect on metabolism, but the administering of large doses of A in cod liver oil has been shown to intensify the specific dynamic action of food (V. Arvag).

The planning of these diets involves the use of tables of food composition such as those of Atwater and Bryant, or Locke, as well as the use of

food scales, just as does the very similar dietary management of diabetes. For a time, at least, the patient should be required to weight his food.

Response to treatment will vary greatly. Some patients will take off weight steadily and easily. Others prove astonishingly refractory. The endogenous cases are likely to be found in the latter group. Occasionally the scales will reveal no change, or even an actual gain, for weeks at a time. This is because of water retention. Von Noorden called attention to the immense importance of the water and salt metabolism in obesity. An abnormality in water regulation may accompany that of fat regulation in these cases. If the patient drinks at will, he may retain more weight from water than he loses from fat, and occasionally it is desirable to strictly limit the amount of water. With persistence, however, one obtains results even in the most refractory cases, provided, of course, the patient is really following directions.

The necessity for reduction exists only when people are definitely overweight. I have no sympathy or patience with the present desire to be stylish and thin. Many women have done themselves permanent harm in their emulation of certain cinema actresses. The greatest danger comes from undirected dieting with resulting vitamin deficiency and nitrogen unbalance. Much weakness, anemia and psychasthenia is undoubtedly due to the current styles in women's clothes.

In addition, there are people who are definitely overweight and who should be reduced with extreme caution, if at all, because their hearts are weak, their kidneys damaged, or they are old and arteriosclerotic. In such cases reducing is likely to harm more than it will help.

There is not much to be gained in attempting to reduce children. Obesity is rare in childhood and when it occurs it almost always indicates an endocrine disturbance which will be little benefited by starvation. On the other hand, a child requires food for growth and if permitted to attain a normal stature he may outgrow to some extent his endocrine dyscrasia. The diet of such children should be regulated undoubtedly, but not restricted.

On the other hand, I would be remiss if I did not emphasize the real danger of obesity and the importance of maintaining a nearly normal weight in the cases of otherwise healthy adults. Obesity is ugly, uncomfortable and dangerous. The actuarial statistics of the life insurance companies attest the shorter lives of overweight individuals and all companies rate these individuals accordingly. Obese people die from degenerative diseases of heart and arteries, from diabetes and from complicating infectious, particularly pneumonia, to which they are especially susceptible.

We unfortunately possess no criteria of optimal weight. For lack of these all of us employ either the height-weight tables of the Medico Actuarial Investigations, or one of the numerous formulae, such as that of Bornhardt, which, according to Gray and Mayall, gives values that coincide best with the measurements made of men in the United States Army and Marine Corps. The Bornhardt formula is

$$W = \frac{H \times \text{Chest Circumference}}{240}$$

The actuarial tables give us averages, rather than optimal weight, and are not applicable to all individuals. The sthenic individual, broad-chested and short-legged, would be under weight at the weight he is allowed in the tables. The hyposthenic, long-waisted, long-legged and narrow-chested man, would be obese at the weight given in the tables.

Races vary as much as individuals. Under these circumstances, we must be liberal in interpreting the weight tables and we should hesitate to speak of obesity until the weight exceeds the table value by fifteen or twenty per cent.

Young people are safer if their weight is somewhat higher than the table weight. The mortality rate below the age of thirty is greater among the underweight, exactly the opposite of the situation of people over thirty. Tuberculosis is the great scourge in these early years of adult life, and under-nutrition predisposes to it. A good working rule, I think, is to regard the values of the actuarial tables as minimal optimal values for individuals under thirty and maximal optimal values for individuals over this age.

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APPETITE IN RELATION TO WEIGHT*

MARY M. HARRINGTON

Appetite regulates weight. Under strictly normal conditions, the desire for food (appetite) is such that the organism provides itself with materials in amounts that will keep its weight at the ideal level, but very often our food intake is either excessive or insufficient to maintain the normal standard.

Investigators are at variance regarding the mechanism for securing materials, but they do recognize the two conditions which they call (1) hunger and (2) appetite. For our purpose, we have interpreted hunger as the expression of the physiological need of the body for the materials necessary to carry on its activities. This is a condition rarely experienced by the average man.

On the other hand, appetite, that is, the conscious desire for food, may be stimulated by the hunger mechanism; may be the result of habit; may merely be a means of entertainment; or eating may be an outlet for nervous energy.

Appetite. It has become customary for the normal individual to eat three meals a day, and the type of food which he eats is determined by his social and economic status. He gives very little thought to the kind of food eaten and often does not remember the menu of the previous meal. However, suppose that this individual decides to gain weight and so adds an extra slice of toast and some cereal to his morning meal until he has gained fifteen pounds. After he has gained the desired weight, he continues to eat this amount because he has acquired the habit. If he omits these foods, he experiences a feeling of dissatisfaction, and has the desire to eat more. It requires a conscious effort on his part to counteract this habit. Appetite and habit must be submerged by a stronger impulse, and the habit of overeating may be as hard to change as the alcoholic habit. Formation of a habit is a very simple process, but changing the paths of transmission requires a strong impulse and a consciousness involving selection and control, or will.

* From the Department of Internal Medicine, University of Michigan, Ann Arbor, Michigan, aided by a grant from the Fellowship Corporation. This study was undertaken as a part of the investigation into the causes of obesity, under the direction of Dr. L. H. Newburgh, Professor of Clinical Investigation.

Mary Swartz Rose expressed the enjoyment of food very well when she said that eating was the favorite indoor-sport of the American. The busy man or woman, whose day is one of routine activity, often begins and ends his relaxation period by going somewhere to eat or by eating at home. As soon as his routine is broken, he looks about for "something to do," and turns to eating and drinking, unless some other activity demands his attention. He may not realize he has increased his food intake until he finds he is gaining weight.

Not only is this habit of overeating formed as the result of the pleasure-seeking motive, but indulgence in food, like that in alcohol, may be the result of emotional stress. Many obese individuals claim that they do not eat much, and it is true that their meals do not seem to be large, but if their habits are closely questioned, we find that they eat much after the fashion that a nervous man smokes. They admit that they do not eat because they have a desire for food. This type of individual, however, has to be doing something, either tapping the foot, playing with something, or, if food is near at hand, eating. This soon creates the habit of eating while reading. For example, women, while playing bridge, will remark that they must not eat any more candy because it makes them feel sick. They become absorbed in a hand of bridge, and, unconsciously (?), reach for another piece of candy just as a man lights another cigarette. This interpretation of nervous energy in food soon develops the habit of over-eating unless controlled by judgment, and an outlet for this energy must be provided in some other way.

It has been clearly proved that obesity (1) is due to an excessive intake of calories, and that emaciation is due to an insufficient intake. Both conditions depend upon appetite. The normal individual may maintain a standard weight over a period of years if his living conditions remain constant and his nervous system remains stable. A decrease in activity, or an increased emotional stress, however, will produce a gain or loss in weight. Emotional stress may cause a loss of appetite, with a consequent loss in weight. The anorexia of the neurological case can be cured by eliminating the inhibiting force and stimulating other interests strong enough to counteract this desire to avoid food, and the individual can be made to gain weight.

In order to study the individual response, a group of persons were served different types of diets. The weight of the food, and the calories eaten, were recorded. The response to such a diet was judged by the weight curve. All of the diets were carefully weighed and prepared by the same person throughout the series. The subject was served three

meals a day, and was allowed no food other than his meals. Neither the plan of the dietary studies, nor the selection of foods was discussed with the subject at any time. All of the menus for all of the diets in all of the cases were planned on the basis of the regular house menu (arranged by the administrative dietitian) to insure sufficient variation and avoid any personal influence in the foods offered. On all of the different types of diets more food was offered than the subject consumed in order to allow entire freedom in the amount eaten. Comments, as noted, were received by persons disinterested in the experiments.

Normal diet. A diet, comparable to the house menu, but of known composition and offering 1.5 to 2.0 calories per gram was served.

Bulky diet. This diet was based on the house menu, but the servings of concentrated foods were limited, and the remainder of the diet had to be selected from fruits and vegetables and other foods low in calories. It was adequate in minerals, vitamins, and protein, and furnished one calorie per gram of weight.

Concentrated diet. The amount of low-calorie foods was limited, and only the usual amount of vegetables as given in the house diet were served. The total bulk of the diet was kept as low as that of the house diet, but the foods offered were very concentrated. Cream and butter were used instead of milk, and glucose and sucrose were used for sweetening in order to introduce more calories for a desired sweetness. The diet appeared the same as the normal diet, but averaged 2.5 calories per gram of weight.

The appetite response of three normal individuals to the three types of diet is recorded in table 1.

(1) Mr. L.; 25 years of age; height, 5 feet 10 inches; basal metabolic rate, normal; activity, laboratory worker.

(2) Mr. S.; a trained athelete; 21 years of age; height, 7 feet 8 inches; basal metabolic rate, minus 16 per cent; activity, normal routine of a student and a constant amount of swimming every day.

(3) Mr. H.; age, 32 years; height, 5 feet 8 inches; basal metabolic rate, minus 6 per cent; activity, routine duties of a laboratory technician.

The series of responses to the different types of diet are interesting in subject (1), Mr. L., because they show the response of a very emotional individual, who, contrary to his own belief, exhibited many food prejudices. The results can only be regarded as suggestive because the periods are very short.

All three subjects lost weight on the bulky diet. This indicated a loss of body tissue which, however, was not sufficient to force them to take

energy enough to maintain their weight when it would have been necessary to eat a mass of food far beyond the habitual volume.

Following this period, subjects (2) and (3) were asked to return to their normal routine of eating and were weighed daily under standard conditions. It was expected that a gain in weight would ensue due to an indulgence in foods which had previously been restricted. Neither showed a gain in weight.

TABLE 1

Appetite response of normal individuals to various types of diets

SUBJECT	DIET	DAYS	GRAMS		CALORIES		WEIGHT	
			Offered	Eaten	Offered	Eaten	Initial	Final
							kgm.	*kgm.*
1. Mr. L.	Normal	21	2,515	1,677	4,772	3,137	67.40	67.00
	Bulky	7	4,270	2,074	3,474	2,072	66.62	65.10
	Concentrated	7	2,810	1,558	7,710	4,370	65.10	65.88
2. Mr. S.	Bulky	32	4,819	3,835	4,289	3,579	96.40	94.50
	Normal*	31					95.40	94.00
	Concentrated	25	3,089	2,519	7,622	5,822	93.60	97.00
3. Mr. H.	Bulky	31	3,500	2,800	3,500	2,830	68.80	65.40
	Normal*	22					65.40	65.00
	Concentrated	34	2,623	1,711	6,431	4,110	65.00	68.00

* Diet selected by subject according to his usual habits of living.

TABLE 2

Response of a subject with thyroid disturbance

SUBJECT	DIET	DAYS	GRAMS		CALORIES		WEIGHT	
			Offered	Eaten	Offered	Eaten	Initial	Final
							kgm.	*kgm.*
Mrs. S.	Normal	8	1,800	1,700	2,550	2,450	58.20	59.10
	*Normal	11	1,800	1,616	2,470	2,366	59.10	57.40

* During this period the patient was receiving thyroid medication.

All three of these subjects evidenced a marked gain on the concentrated type of diet, but the enjoyment from eating was not derived from gastric distension, since the bulk intake was not large, but from the flavor. The caloric intake was excessive. On this diet it was impossible for the individuals to use judgment in estimating the amount of food eaten because of the methods used in preparation, and, consequently, all consumed more than their requirement. They acknowledged a keen

enjoyment of the food, and this appetite continued even though the energy intake was beyond the needs of the body.

Table 2 shows the response of a patient suffering with thyroid disease.

Mrs. S.; age, 42 years; height, 5 feet 11 inches; weight, 55.4 kgm.; basal metabolic rate, minus 30 per cent. This woman returned to the hospital because she had been gaining weight. One year previously thyroidectomy had been performed for the relief of Graves' disease. Since her recovery, she had made a marked gain in weight even though she felt that her appetite had been no greater than previous to the onset of the disease. She admitted a good appetite at all times, except during the acute illness, but seemed positive that her appetite had not increased.

When this woman came to the hospital the second time, she was given a weighed house diet, in excess of the intake. During her entire stay in the hospital, her food intake remained at a constant level. She was given thyroid medication until the basal metabolic rate returned to

TABLE 3

Three cases of myxedema in which there was a progressive loss in weight

SUBJECT	AGE	BASAL RATE	WEIGHT	
			Initial	Final
			kgm.	*kgm.*
Mr. D.	45	Minus 33 per cent	56.00	52.00
Mr. H.	52	Minus 34 per cent	93.00	85.00
Mrs. S.	47	Minus 34 per cent	72.00	68.00

normal. A loss in body-weight followed, but the caloric intake remained the same even though the needs of the body were increased in this manner.

In contrast to this case, are listed three cases of myxedema, (table 3), each of whom showed the expected low basal metabolic rate. During their hospitalization, these patients all lost weight progressively. Since no attempt was made to regulate their food intake, it is safe to conclude that their appetites had decreased sufficiently to account for the loss rather than the gain in weight. The mechanism for securing energy failed to respond to the increased demand in the case of Mrs. S., but compensated with a decreased intake in the three cases with a lowered metabolism. Apparently this mechanism does not exhibit a fixed reaction, but is readily influenced by other than physiological conditions.

Cheney (2) recognizes the psychic factor in the treatment of disorders of hunger and appetite, and it is common to find bulimia and anorexia

as accompaniments of psychoneurosis and hysteria. Two girls of the "pathologically thin" type were sent to the clinic in an effort to increase their weight. Both subjects considered themselves ill enough to be bed-patients.

Case 1, C. R.,—a young woman, 23 years of age; height, 5 feet 4 inches; weight, 35.40 kgm.; basal metabolic rate, minus 29 per cent. This patient gave a history of losing weight for five years. She thought her appetite was always good, but evidenced a phobia for certain foods.

Case 2, M. S.,—a young woman, 25 years of age; height, 5 feet 7 inches; weight, 36.50 kgm.; basal metabolic rate, normal. Weakness and an inability to gain weight caused this girl to enter the hospital. She gave a history of a poor appetite, irregular meal-hours, and bad food-habits.

Neurological examination showed both of these patients to be of the constitutionally inferior type and emotionally unstable. At every meal,

TABLE 4

Two cases of "pathological thinness" due to an insufficient appetite

CASE	DIET	DAYS	GRAMS		CALORIES		WEIGHT	
			Offered	Eaten	Offered	Eaten	Initial	Final
							kgm.	*kgm.*
1. C. R.	Normal	5	1,700	650	2,450	880	35.80	35.00
	Concentrated	20	2,597	1,460	6,069	3,210	35.70	40.50
2. M. S.	Normal	12	1,376	1,283	2,680	2,515	36.50	38.50
	Concentrated	17	2,597	1,712	6,069	3,988	38.50	41.70

Case (1) found it necessary to eliminate another food from her diet because "it might hurt" her. Case (2) was rather indifferent to food, but greatly concerned, and somewhat displeased, at every gain in weight. Great urging was necessary to have this latter patient sit up or walk. The appetite was suppressed in one by the fear of food, while the other desired to remain an invalid. Table 4 summarizes the results in these cases.

Richardson (3) considers this type of undernutrition to be the effect of a disordered perception. Both individuals were of the emotionally unstable type and the inhibiting factor had to be removed. After it was proved to them that they were suffering from no organic disturbance, they were given a diet limited in bulk, but which had a high caloric value, and were instructed to eat all of it "for experimental

purposes." Even though a marked gain in weight was produced, the outlook of these patients was only slightly improved.

The fat person is popularly considered to be the happy, easy-going, phlegmatic type of individual, but clinical observation of a group of obese women has shown that they may be of a very emotional nature. Any worry or mental upset might produce the common, and often identical comment, "I get so nervous that I just have to eat." Food seems to be an outlet for some of that nervous energy, and a different channel has to be opened to divert their interest from food.

R. L., a young woman, 21 years of age; height, 5 feet 7 inches; weight, 127.4 kgm.; basal metabolic rate, normal. On May 29th, 1922, this girl, sixteen years of age, was admitted to the hospital weighing 120.0

TABLE 5

Response of an obese subjects to various types of diets

SUBJECT	DIET	DAYS	GRAMS		CALORIES		WEIGHT	
			Offered	Eaten	Offered	Eaten	Initial	Final
							kgm.	*kgm.*
1. R. L.	H. C. House	13		1,600		2,731*	125.40	125.40
	Concentrated	7	1,600	1,268	4,000	3,171	125.40	124.60
	Bulky	59	4,000	1,754	4,000	1,839	125.70	113.00
	Bulky	15	2,000†	1,675	2,000	1,465	113.80	111.80
	At home	30					111.80	106.80
	1,000 Cal.	120					84.70	77.50
	2,050 Cal.‡	30					74.20	74.10

* Calories estimated.

† Quantity offered reduced to one-half.

‡ Theoretical maintenance calories.

kgm. There was a history of a large appetite, and a record of two days intake at the hospital of 2935 and 5426 calories. She was given a diet of 1000 calories and required to walk a prescribed distance daily. After being instructed in the use of a weighed diet, she was discharged from the hospital on June 8th, 1922, weighing 113.9 kgm. On November 11th, 1928, this patient returned to the hospital weighing 127.0 kgm. She admitted indulgence in the richer foods. This time she seemed very much in earnest about losing weight.

Since it was thought that this desire to lose weight was great enough to limit her food intake, no discussion regarding the proposed treatment, or about food or food-values, was carried on with her at any time.

Table 5 shows the response of this subject (R. L.) to various diets.

The intake on the high-caloric house and on the concentrated diets gives no evidence of a restricted appetite.

Coincident with the beginning of the period of bulky diet, this girl expressed a decision to lose weight. Even though 4000 calories were offered daily, the intake only averaged 1839, and the patient lost weight. It was thought that the intake might be regulated by selecting only half of the quantity offered. The quantity offered was considerably reduced to observe the effect of this variation on her judgment. She continued to eat less than the amount offered.

Upon discharge from the hospital, she was given no instruction about the selection of foods, but was asked to return in four weeks. She continued to lose weight while selecting a diet from the family fare.

C. H., a young woman, age 31 years; weight, 105.0 kgm.; basal metabolic rate, minus 21 per cent; activity, student. This young woman had been on an estimated diet of 1200 calories at home for three months and came to the hospital because she had failed to lose weight.

A diet of 1000 calories was given in two meals a day over a period of 120 days, and this student lost 7.2 kgm. Following this, her theoretical maintenance diet of 2050 calories was given under the same conditions and at the end of a thirty-day period, she had maintained her weight.

Both of these girls came to the hospital to lose weight for social reasons. R. L. began to realize the handicap of her size in social activities. Her history and her response to the high caloric and house diets show her keen enjoyment of food. When she was given an opportunity to study a business course, and the handicap in securing a position on account of her size became more apparent, she decided to lose weight. Even though her diet permitted enough food to gain weight, her judgment was accurate enough, without any instruction, to cause a marked loss. After her return home, she was able to judge her diet closely enough to continue losing at the same rate as in the hospital. The only accurate knowledge this girl had about a reduction diet was that which she had received five years previously, and had entirely disregarded, and yet, when prompted by will, she was able to select a diet low enough to cause the desired loss in weight. Her only treatment was that of supplying an interest by giving her an opportunity to learn a business course. This motive to become self-supporting was strong enough to counteract her appetite.

G. H., a student in the university, came to the hospital to lose weight because "her financé insisted." She admitted a keen enjoyment in eating and accepted all blame for her condition. Her mother and sister

were also considerably overweight. She was thoroughly instructed in regard to a weighed reduction and a weighed maintenance diet after having lost 17.2 kgm. on the 1000 calorie diet. During her honeymoon trip, she gained 7.0 kgm. (almost all she had lost previously) because "she just could not choose her diet at hotels." She was again put on a weighed diet and showed the expected loss, but the effort for a few weeks now on a strict régime seemed harder than the many months endured previously. She was a very emotional individual and became almost hysterical over small worries. A mild illness of her mother was sufficient to upset her so that she "just could not diet and had to eat." Consequently, she gained 10 kgm., and admitted eating generous quantities of food. She tended to dissipate her nervous energy in eating, unless a very strong motive was supplied to give her another outlet.

The interest in food expressed by these emotional individuals was unusually great, and some motive had to be supplied to make them undertake a change in their food habits. It was proven that G. H. could maintain her weight by living on her theoretical maintenance diet, but as soon as the incentive was removed, she again turned to food as an outlet for nervous energy. In the case of R. L., the motive of self-support was a stronger and more lasting one, and this individual was able to continue in her new régime.

SUMMARY

Appetite is a conscious desire for food. The desire alone may not cause the organism to take in as much energy as it uses when the diet is bulky. Appetite may cause an excessive intake of energy when the diet is concentrated. (See table 1.) For these reasons, it is possible to regulate the weight of an individual without any knowledge on his part of the composition of the diet, and, at the same time, completely to satisfy his appetite.

Through habit, this desire in some individuals becomes satisfied when a certain quantity has been ingested, regardless of the body's need. (See table 2.) In others, appetite adjusts itself to a changing need. (See table 3.) Appetite may be inhibited by phobias to a degree that produces pathological thinness. (See table 4.) In obese subjects the habit of overeating may be acquired as a means of entertainment, or as an outlet for the emotions. (See table 5.)

When the plan of treatment succeeds in establishing the will to lose weight, the importance of gratifying the appetite is thereby reduced to

such an extent that these subjects find themselves comfortable on a low-calorie diet.

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A PROCEDURE FOR METABOLISM STUDIES*

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Methods for conducting balance experiments are by no means simple. The investigator often approaches a metabolism study with anxiety because there are so many details to arrange, to be directed and checked, so many chances for error to creep in, and so many stages in the procedure where failure will ruin the entire observation.

No doubt efficient plans have been evolved in many laboratories, and we would be much nearer a simple standard procedure than we are now if more findings could be assembled from these various sources. Too often when the results of an investigation are being reported, many of these details have to be omitted for the sake of brevity and cannot be passed on for the benefit of other investigators.

A given method cannot be used in all situations, but devices or improved technique can often be transferred from one situation to another. Methods for balance experiments on infants (1, 2, 3) will differ somewhat from those done on children (4, 5), and certain details will also be different for adults (6). Observations on hospital patients (7) will have a different routine from those made on normal individuals living in a group expressly for the purpose of a balance experiment (8). Studies on individuals, singly, living in their own homes, present other problems (9, 10).

The plan described below is one used by the writer in conducting balance experiments for calcium, phosphorus, and nitrogen on pregnant women living in their own homes and consuming a self-chosen diet with all its variety and complexity. The method is adaptable for use in hospitals or in other situations where individual subjects are being observed.

METHODS

Balance experiments were carried out on normal pregnant women at different stages of the development of the fetus. The metabolism periods were usually of five days' duration, although five of the twenty-three pe-

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riods were of six days', and three, of only four days' duration. During such observations, visits were made to the home at meal time for the purpose of weighing the food to be eaten, taking samples of each food for analyses, and, incidentally, with each trip, providing fresh receptacles for excreta and removing collections already on hand to the laboratory. The subjects selected and prepared their own meals as usual, these being similar in quality and amount to those eaten from week to week. The reason for such a plan was to make it possible to observe the women under conditions as nearly normal for them as feasible, without upsetting home atmosphere, the usual hours of sleep, rest, recreation and exercise, meal times, schedules of household tasks, family duties, or social obligations, excepting meals eaten outside the home.

A tested Hanson scale was placed in the home during each observation period. The food to be eaten was weighed after cooking and just before serving. At the time of serving, samples of each food were removed to a quick-sealing half-pint fruit jar which was immediately closed. These samples were taken to the laboratory, and as soon as possible, on the same day, portions equivalent to exactly one-tenth of the intake were weighed into composites, which were dried, ground, and mixed for analyses.

Feces were collected into weighed glass containers and inserts made of one-liter pyrex beakers cut down in height so as to be inclosed in aluminum one-quart pails. After the collections were removed to the laboratory the contents, without being transferred, were weighed, covered with acidified alcohol, evaporated to dryness in the glass container, ground, and mixed for analyses. Carmine was used to mark the stools at the beginning and end of each period.

The general procedure for drying was to leave the material on the steam bath until practically dry, then remove it to an electric drying oven at eighty degrees Centigrade, and dry further to constant weight. After being ground, the material was stored in bottles until used, when the portions to be analyzed were again dried to constant weight.

Urine was collected in bottles to which a few cubic centimeters of toluol had been added. Each twenty-four hour collection was measured and the specific gravity and reaction recorded. Tests for sugar and albumin were made daily, in order to be certain there were no complications. Composites of urine, representing an aliquot of each day's excretion, were made and preserved in glass-stoppered bottles with toluol and strong hydrochloric acid.

DISCUSSION

Food. Although the period of observation was usually five days, obviously on a self-chosen and varied diet a seven-day period is more ideal since Sunday's meals then contribute their share to the average.

Preliminary periods seemed unnecessary in this study, since most subjects were observed more than once under similar conditions. Constant diets, very low in the element being studied, are necessary in observing the effect of a specific food or food factor. When such a diet is being used, a preliminary feeding period is necessary, which may be followed by a shorter experimental period of three to five days. A preliminary feeding period of three days may be sufficient if the new diet is similar to the previous one of the subject, but if there is a radical change, such as from a high calcium to a very low calcium intake, then a period of five days or more should precede the actual collections. More experimental data are needed to establish the proper length of preliminary periods. With the constant diet, the experimental period is followed by a "lag" period of one to two days during which time the diet remains the same, but no food or urine collections are made.

The tested Hanson scale is sufficiently accurate for large servings of food. Foods served in small amounts, for example, butter, salt, sugar, salad dressing, catsup, jellies, or even bread, crackers and cookies, may often be weighed in quantities for several days ahead, thereby decreasing possibility of errors from small and multiple weighings.

It is important that the food be sampled for analyses when served, and not after the moisture content has changed. In some situations, jelly glasses with tight-fitting covers may serve in the place of the quick-sealing fruit jars for holding the approximate samples until they can be weighed more exactly. It is preferable when possible, however, to have on hand at the time and place of serving scales sufficiently accurate for weighing the composite samples at the time the food is served, rather than waiting till after the samples are removed to the laboratory. A torsion balance, accurate to 0.1 gram, is fairly rapid for making composites if the small shot are used to balance the container.

Obtaining a homogeneous sample of the food served is frequently a problem, particularly in the self-chosen diet. Sections from center to surface may be taken of many fruits, bakery products, and meats. Many vegetables can be mashed or finely chopped for serving. Eggs must be either well beaten, as for an omelet, or well scrambled, and hard-boiled eggs must be finely riced and mixed. Cooked fruits and their juices

must be weighed separately, as well as pastry crusts or cases, and their fillings. Milk or cream should be well mixed before measuring. Bread should be taken from the middle of the loaf and should be weighed and sampled before it is toasted to insure uniform moisture content. Accuracy in measuring milk or other liquid samples is obtained by use of a dropper for the last portions.

High fat diets are often difficult to handle after they are dried. If neither fat nor total calories are being determined, the dried composite may be extracted carefully with ether before being removed from the container. The combined extractions may then be evaporated and the residue weighed and ashed, the ash in turn being weighed and returned to the original composite and the corresponding weight corrections made. Another plan is to melt the total quantity of butter sample for the period, and allow the fat to separate out, after which the foam, curd, and water are added to the composite. Butter fat prepared in this way may be fed instead of butter and the sample be omitted from the composite.

Sugar and such concentrated sweets make a sticky dried composite which is difficult to handle. If the calories are not being determined, at least the pure sugar may be omitted from the composite. Some mixing of all foods, which have been cut into rather small pieces while being added to the composite, and the practice of oiling the inside of the container with some of the butter from the sample, will lessen the difficulties from stickiness. The use of glass containers, such as described for feces, offers similar advantages for drying and for accuracy. Any resistant glass vessel with a flat bottom may be used, provided the ratio of the diameter to depth is greater than 1.0, and preferably 1.5 to 2.0, in order to permit a reasonable rate of drying.

Obviously, distilled water must be used for drinking purposes, or if tap water is used, it should be measured and corrections should be allowed for its mineral content. However, distilled water for cooking purposes will not be necessary with the composite method described above; nor will the usual precautions and corrections need to be made for changes during cooking. By making the composite directly into the tared container in which it will be dried, one can avoid errors due to transfers, and thus weighing and sampling will become the only main sources of error.

The advisability of using the composite method when observing a number or persons simultaneously will depend upon the size of the group, the situation, the number of food items in the daily diet, and the possible variations or range in intake. With the composite plan a less monoto-

nous diet is possible for long-time feeding experiments since much labor is saved in making analyses. The method is doubtless more accurate and may be more time-saving than using a stock diet of previously analyzed foods.

Feces. Carmine marks off the stools better than does charcoal. Whatever color is used, care should be taken that the meal preceding or following the ingestion of the marker does not contain articles of food which will leave like-colored residues. Tomatoes in large amounts, beets, berries, or spinach and greens may obscure the marking in some individuals.

The necessary dose of carmine varies with different subjects, less being required for the fermentative or acid type of stool than for the putrefactive type, or for the individual with a low gastro-intestinal rate (11). Some investigators suggest 0.6 gram for the average dose (7), others say 0.2 to 0.3 gram (12). The writer has found capsule No. 0, well filled, to be a good average dose. Too large a dose causes diarrhoea. The carmine seems to be equally effective whether taken in water immediately before the meal or in the gelatine capsule not longer than thirty minutes before the meal to be marked.

Occasionally cathartics are necessary in the course of a metabolism experiment, especially with inactive subjects and hospital patients, but these are to be avoided as far as possible, because of the abnormal gastro-intestinal rate and therefore lower absorption of digested foods. Liquid petrolatum, fluid extract of cascara, and distilled water enemas have been recommended (7), but the use of oil is undesirable because it complicates the drying of stools. Whatever substance is used, other than distilled water enemas, it is a good practice to add an aliquot to the food composite.

The tared glass inserts described above for collecting feces are more accurate since transfers are unnecessary. They are convenient to use and fairly safe from breakage while being transported from place to place in the pail. The flat bottoms permit rapid drying, and because the contents are visible, more accurate separation of markers and estimation of drying stages are possible. The glass insures a minimum of contamination because of the ease of cleaning and lack of contact with metals. Enamel pails, used without inserts, tend to roughen and etch on account of the acid used in the alcohol. These advantages seem to justify the additional expense incurred from the use of the inserts.

The acidified alcohol employed in drying stools contains one part concentrated hydrochloric acid to nine parts alcohol. The more acid and fermentative type of stool dries faster if less acid is used in the alcohol.

Although various types of mills for grinding are on the market, the ordinary food chopper, using one of the finer cutters, seems to be most economical of time and labor for grinding and cleaning. Food should be ground to pass through a 20-mesh sieve. The dry feces may be pulverized with mortar and pestle, or by other means. Ether is sometimes used to mix the total dry mass to a homogeneous sample, but cannot be applied to stools containing solid or undigested particles of food.

For both food and feces the weight of the dry material before it is removed from the container represents the factor weight upon which to base all calculations from analyses. For example, if the food composite represents one-tenth of the intake, ten times this dry weight represents the total, and calculations proceed from this figure without reference to the weights of the food before cooking, serving or drying.

Urine. Urine collections were made in acid-resisting enamel cups with outpours, and transferred to a large bottle containing five to ten cubic centimeters of toluol. A more accurate procedure, when it can be used, is the introduction of the urine directly into the large bottle with the aid of a glass funnel. Chloroform and powdered thymol are also used as preservatives (7), but these interfere with some analyses (12). Composites of urine may represent aliquots of each twenty-four hour excretion, or if specimens are not required for sugar, albumin, or other tests, it is more accurate to combine the total excretions for each day of the period, then at the end set aside a portion of the composite for analyses, discarding the remainder. Enough concentrated hydrochloric acid (10 to 25 cc. per liter of urine) is added to make it distinctly acid, a correction being made for dilution of the total volume. Enough additional toluol is added to insure a layer on top of the urine in the bottle.

SUMMARY

A method for conducting balance experiments on individual subjects is described. The time and labor-saving advantages of the food composite plan, and the convenience and possibility for greater accuracy in the use of pyrex containers for both collections and dryings of food and feces, is emphasized.

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THE NUTRITIONAL ADEQUACY OF DIABETIC DIETS*

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The probability of nutritional deficiencies in the average diabetic diet led to a study of fourteen typical cases which were collected from four representative hospitals in New York City. Ten of the cases were adults, and four were children. Diets for these consecutive days were obtained for each case. The energy, protein, calcium, phosphorus and iron content of each menu was calculated and charted. The vitamin content of the diets was estimated. The optimum daily intake of food for each individual was calculated on the basis of his normal weight as shown in standard height-weight tables (1). Since statistics published by life insurance companies and others make it seem probable that the optimum weight for persons more than thirty years of age is considerably below the average for their age as shown in the tables, and is probably near the average weight at thirty for all subsequent ages, and since it is usually considered preferable for diabetics to be somewhat underweight, the weight standard for each patient in this study, who was more than thirty years old, was set at the thirty-year level, and his requirements were calculated accordingly.

The food requirement was then compared with the average daily food allowance, and the differences between the two were noted. The purpose of the study was to determine what nutritional inadequacies, if any, are present in the diabetic diet as it is usually given, and to suggest corrections to avoid possible deficiencies. The standards used in determining the requirement of each patient are shown in table 1, and the summary of the number of deficiencies found in the diets of these fourteen patients, in table 2. The following reports of five cases have been selected as typical.

Case 1. A woman 59 years old, 5 feet 5 inches tall, and weighing 92 pounds. Her normal weight at age 30 was 140 pounds. The patient was therefore 34.3 per cent underweight at the time of the study. The prescription given for her was carbohydrate 40 grams, protein 40 grams, fat 100 grams. The caloric allowance in this diet was 56.2 per cent below the standard for this patient, so

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that she had no opportunity to gain weight. This low energy intake, together with the 42.8 per cent protein deficiency, made a weakened and emaciated condition inevitable. The diet included only 50 grams of milk daily. It averaged 80 grams of meat and 1½ eggs. It contained no whole cereals. There was a severe vitamin B deficiency in spite of the use of 90 grams of fruit and 260 grams of vegetable. Such a diabetic diet is, nutritionally, seriously inadequate. The minerals in this diet were deficient as follows: calcium 46.4 per cent, phosphorus 50.0 per cent, iron 46.4 per cent.

TABLE 1

Daily dietary standards

	ADULT	CHILD
Energy	15–18 cal. per lb. body wt.	30–35 cal. per lb. body wt.
Protein	0.5 gm. " " " "	1.0–1.5 gm. " " " "
Calcium	0.0046 " " " " "	1.0 " " person
Phosphorus	0.0088 " " " " "	1.0 " " "
Iron	0.0001 " " " " "	0.00025 " " lb. body wt.

TABLE 2

Summary of deficiencies found (2)

	ADULTS	CHILDREN	TOTAL
Total number of cases studied	10	4	14
Number of cases more than 10 per cent underweight	4	1	5
Number of cases overweight	2	2	4
Inadequacies in diets, number of cases:			
Energy (excluding obese patients)	6	2	8
Protein	4	1	5
Calcium	3	2	5
Phosphorus	3	0	3
Iron	5	1	6
Vitamin A	0	0	0
Vitamin B (moderate)	1	2	3
Vitamin B (severe)	4	1	5
Vitamin C	0	0	0

The prescription for the diet in case 2 was carbohydrate 115 grams, protein 75 grams, and fat 130 grams, as compared with the carbohydrate 40 grams, protein 40 grams, and fat 100 grams ordered in case 1. Case 2 shows the possibility for adequacy in a diabetic diet when the prescription meets the patient's needs and the foods are carefully chosen. The diet for case 1 could have been somewhat improved if the foods given had been chosen with nutritional adequacy particularly in view, but no amount of

care on the part of the dietitian could have overcome the fact that, in view of the low prescription, not enough food could be given to include the necessary minerals and vitamins.

Case 2. A woman 63 years old and 5 feet 2 inches tall, weighing 115 pounds. Her optimum weight at age 30 was 124 pounds. This patient was only 8 per cent underweight. Her diet was completely adequate except for a possible slight vitamin B deficiency. She received daily, as protective foods, 400 grams of milk, 4 eggs, 20 grams of whole cereal, 500 grams of vegetable, 300 grams of fruit, and some cream and butter.

Case 3. A child 6½ years old who weighed 42 pounds and whose normal weight was 57 pounds. The diet prescription given for him was carbohydrate 60 grams, protein 50 grams, and fat 100 grams. The protective foods given in this diet included 500 grams of milk, 60 grams of butter, 3 eggs and 2 egg yolks, 10 grams of whole cereal, and 110 grams of fruit daily. Although the child was growing and was 26.3 per cent underweight, he received a diet deficient as follows: calories 23.6 per cent, protein 11.9 per cent, calcium 4.6 per cent, iron 6.1 per cent. The diet was adequate in vitamins A and C, but seriously deficient in vitamin B.

Case 4. A child 11 years old whose diet was more nearly adequate than that in the preceding case. She weighed 75 pounds and was ambulatory. Her diet prescription was carbohydrate 75 grams, protein 60 grams, fat 100 grams. The foods chosen to fill this prescription gave her a diet adequate except in vitamin B, the requirement for which was not fully met by the diet. The energy allowance was 30.7 per cent below normal, but this was for the purpose of preventing a gain in weight. Her normal weight was 56 pounds. She was 34.0 per cent overweight, due, perhaps, to her very stunted height or to her abnormally sedentary habits and phlegmatic temperament. Sufficient minerals and vitamins were supplied her daily by 400 grams of milk, 90 grams of cream, 30 grams of butter, 2½ eggs, 25 grams of whole cereal, 300 grams of vegetable, 150 grams of fruit, and 60 grams of meat. The addition of more milk would have made a further improvement in the diet.

Case 5. A child 18 months old, weighing 24 pounds, which is her normal weight. Her diet prescription of carbohydrate 130, protein 55, fat 55, allowed a choice of foods which covered all her nutritional requirements.

CONCLUSIONS

The caloric intake of diabetic individuals should be carefully regulated. Although the adult diabetic should never be overweight, it is quite necessary that he have enough calories to supply his energy requirement

and to prevent emaciation. Diabetics as a class are subject to infection; undernourished diabetics are still more susceptible, and suffer, as well, from weakness and other serious results of malnutrition. The mineral intake can be adequate in diabetic diets if the prescription allows a reasonable total food intake, but care must be taken in food selection to made it adequate. Milk should be added to supply calcium and phosphorus. The frequent use of vegetables such as spinach and peas which are known to have an especially high iron content is important. The phosphorus and iron content of the diet can be raised by the substitution of whole grains for refined cereals.

Vitamin B seems to be the only vitamin commonly found to be inadequately supplied in diabetic diets. The liberal use of cream, butter, egg yolk, and leafy vegetables will supply an adequate amount of vitamin A, and vitamin C is generously supplied by the use of citrous fruits and vegetables. Milk and whole cereals used in larger amounts would improve the vitamin B intake. It is possible that a more plentiful supply of vitamin B in diabetic diets might relieve and prevent the chronic constipation so prevalent among diabetics. Sherman (3) says: "There is considerable evidence of the relation of vitamin B to the proper functioning of the digestive tract. . . . . An inadequate supply of vitamin B in the diet of test animals leads to intestinal stasis, attributed by McCarrison to diminished neuro-muscular control of the intestine."

Many physicians who see large numbers of diabetics, feel that the incidence of tuberculosis is high among such patients. While statistical evidence in support of this theory does not seem to have been sought, it is probable that the supposition is true. Various reasons for the frequency of this combination of diseases have been advanced, such as the specific effect of high blood sugar on the development of the tubercle bacillus. Is it not possible that the simplest and most obvious reason may be the correct one? Tuberculosis is a disease of malnutrition, which develops most often in individuals who are underweight. Diabetics, who are intentionally underfed and kept underweight for the better control of the diabetes, can be expected to pay the penalty of poor nutrition.

In order to plan an adequate diabetic diet, the food prescription must, to begin with, allow enough protein and calories. If this is not done, the diet is lacking not only in these two essentials, but because of the small amount of food which can be included, and the small range of choice which is possible, sufficient minerals and vitamins cannot be provided. If the basic prescription for carbohydrate, protein and fat is adequate, a liberal supply of minerals and vitamins can be, and should be given.

The use of building and protective foods must receive even more emphasis in the restricted diet of the diabetic than in the diet of the normal person. Special diets should be modifications of the normal to meet pathological conditions. They must be planned with due consideration of all the nutritional requirements of the normal individual, none of which have necessarily been changed by the onset of the disease.

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THE INFLUENCE OF THE CANNING INDUSTRY IN THE CHANGING DIETARY*

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A recent paper on converting a complex substance into simpler and more valuable foods discussed the wide distribution of starch in nature, particularly in foods of vegetable origin, and its importance in supplying heat and energy in the daily diet. The production of corn starch, gum, dextrin, corn syrup, corn sugar and corn oil from corn was described.

The great advantages gained from the separation of a complex substance, such as corn, into its simpler constituents, no one has any desire to belittle. The augmentation of the monetary value of corn brought about thereby, is a matter of economic record. The enticing possibilities that all these numerous new products have offered to culinary art and skill have been extolled before, and are appreciated by the public. Any dietary effects brought about thereby are matters for consideration by dietitians and allied groups. I discuss these effects, not in a spirit of decrying or extolling the practices of converting complex foods into simpler foods, but in the hope of making some suggestions of other practices that may fit in so as to approach the ideal in dietary habits. As I am associated with the canning industry, it naturally follows that my interests are centered around canned foods.

The principle of converting a complex substance into simpler and more valuable foods has had a marked effect on our dietary. In order to furnish a basis for discussion, a brief analysis of this dietary is necessary. According to the statistician, Raymond Pearl, our average dietary from 1912 to 1917 was as follows, the figures representing caloric values:

	per cent	
Cereals	34.67	47.91
Sugars	13.24	
Meat, fish, poultry and dairy products, and oils		43.38
Vegetables		5.32
Fruits		2.21
Nuts and cocoa		1.21

* Presented before the Massachusetts Dietetic Association, January 14, 1930.

According to the reports of the Food Research Institute of Leland Stanford University, the consumption of wheat flour plus corn meal dropped from 1,537 calories per capita per day in 1889 to 901 calories in 1919, and since then has remained fairly constant. The sugar consumption, however, has grown from 242 calories to 522 calories in a similar period. If we add to these, rice and other milled cereals, and the refined vegetable oils, the consumption of which is constantly increasing, we arrive at a total of considerably over 1,500 calories per capita per day of simple foods—white flour, polished rice, sugar, refined vegetable oils, etc., manufactured from complex natural food products. Dr. Morris Fishbein, Editor of the *Journal of the American Medical Association*, has recently stated that our average daily food consumption has dropped from the 3,500 calories of a few years ago to 2,500 calories today. The proportion of our diet supplied by these simple foods is thus apparent.

Necessary as are these practices of refining foods to our economic and social conditions, not to omit their desirability in culinary practice, we dare not lose sight of the fact that they have decidedly affected the chemical composition of the diet on which we live. This refinement of food has resulted in the removal of most of the roughage, basic mineral matter, and vitamins, from considerably over half of our food intake.

We often speak of the human body as an engine that burns food as fuel. It is a well known fact that each engine requires its particular type of food. There is chemically a vastly greater difference between the refined foods which constitute over half of our diet and the natural products from which they were derived, than that existing between kerosine and gasoline. Yet these two fuels are not satisfactorily interchangeable in any engine that man has designed. It is well known that different species of animals require their particular types of food. This characteristic has been acquired through a long period of development, and it is not reasonable to expect that man should be able completely to readjust in a few decades the physiological needs which he has acquired through the ages.

Nutritionists have reminded us that beasts of prey devour first the vital organs of their victims, they explain this behavior on the basis of the high nutritional value of these vital organs. These organs are now known to be the carriers of certain recently discovered and essential vitamins. In these days when fresh fruits and vegetables are available the year round, we are likely to forget the relish with which we formerly welcomed the advent of spring vegetables.

Thus one may illustrate the instinctive craving for food products which

we now know to be rich in certain vitamins. Instinct in wild animals has long been recognized as a valuable asset in aiding the animal to choose an adequate diet. That the instinct of an infant is still reliable in choosing its own diet, provided a sufficient variety of natural foods is available, has been reported by Clara M. Davis in the *Journal of Diseases of Children*. Starting with three six-month's old, newly weaned infants, she supplied them with a variety of foods from which they successfully chose a diet which, apparently, for them was optimum. So effective was instinct that one of the three children, who had rickets at the beginning of the experiments, partook of cod liver oil until his condition was relieved, while the other two refused it from the beginning. It has, however, been recognized that man's instinct has become sophisticated and that intelligence must be employed in the proper choosing of a complete diet under the conditions in which we now live. Today, man's sense of taste is being capitalized at the expense of his instinct and his own welfare.

The ill effects of malnutrition, resulting from an unbalanced diet of refined foods, are common knowledge. We can congratulate ourselves, however, that great progress has been made toward correcting such a diet. The milk consumption in the United States has reached the total of fifty-five gallons per person annually, but in Germany it is sixty-one gallons, Switzerland, sixty-seven gallons, and in Sweden, seventy gallons. That we appreciate the value of vegetables in the diet was never brought out more convincingly than in 1921 during the famine in China, when the American Red Cross employed about 20,000 men in road construction for seven months, while furnishing them 2,800 calories per man per day in the form of mixed cereals and vegetables, while a corresponding group received only cereals. While the first group was kept in good health and working condition, the latter was lacking in energy, and the general health was poor. Happily such foods as vegetables and fruits together with dairy products have been termed "protective foods," and their consumption has been so stimulated that the acreage of nineteen commercial truck crops, including early potatoes, the leading vegetables, cantaloupes, watermelons, strawberries, etc., has grown from 1,586,000 acres in 1919 to 2,711,000 in 1928. But our consumption of all vegetables and fruits, combined, constitutes only 7.5 per cent of our diet.

It is no tax on the imagination to realize that if the average consumption is 7.5 per cent, a large number of people are consuming only a small fraction of this quantity. It is probably unjustifiable to conclude that this 7.5 per cent, our present average consumption of vegetables and fruits, is adequate. Our knowledge of such matters is as yet none too

definite. Dr. Lovell Langstroth of San Francisco reported, in the *Journal of the American Medical Association*, impressive results in correcting degenerative diseases on dietaries in which the protective foods constituted not 7.5 per cent, but 70 per cent of the calories ingested. As a result of a vast number of feeding experiments, based on the method outlined by Professor Sherman of Columbia University, it has become customary to assign specific antiscorbutic values to our various foods. For example, 1.5 cc. of orange juice, 1 gram of raw cabbage, 20 grams of cooked cabbage, or 5 grams of banana, daily, have been found to prevent not only scurvy in guinea pigs, but also to produce normal growth. These amounts have therefore been called the minimum protective doses. In a recent issue of the *American Journal of Public Health*, Dr. W. H. Eddy of Teachers College reports as a result of the work of Hajer and subsequent experiments of our own that evidence of lack of sufficient antiscorbutic substances is apparent in the teeth of guinea pigs unless twice these amounts are fed. According to this, what we have regarded as sufficient antiscorbutics must now be doubled to be satisfactory. Furthermore, we now have evidence that the teeth of rats show signs of lack of vitamin C in the diet, whereas the rat has been supposed not to need vitamin C. Although there have been speculations, no one can dogmatically state the amount of our requirement of vitamin C, of any of the other vitamins, of the various mineral elements, or of bulk and roughage of proper texture, to give us the greatest resistance to bacterial infections and to enable us to ward off various diseases. We can safely conclude that many are not receiving their optimum requirement of the protective foods, and that a greater consumption of these foods holds no possible chance of harm.

Except for tropical regions, in which we can include practically no part of our country, certain vegetables and fruits are seasonal and easily available only for limited periods. It is in this connection that the canning industry becomes involved in our changing dietary. The conversion of complex foods into simpler foods is not characteristic of the canning industry. Canning is the art of preserving seasonal products, and others susceptible to rapid spoilage, as far as possible in their natural state with all their nutrient qualities intact, and in a form which renders such products more or less stable and capable of being distributed at all times to all places. In so far as the art approaches perfection it becomes the ideal way to supply such products. It is apparent that the definition just given implies a complex undertaking. We will consider only one phase of it. To what extent are the nutrient qualities preserved?

Early work with vitamins indicated that cooking destroyed them to a considerable extent. From this it was assumed that canned foods must lose practically all their vitamin content since they are cooked at a relatively high temperature. Recent work has shown that this is not the case. The loss of vitamins during cooking is really due chiefly to oxidation, and the heat of cooking merely hastens the oxidation. In canning, this oxidation is effectively avoided, and hence some commercially canned foods have been found to be richer in vitamins than home-cooked foods.

Raw fruits and vegetables have been found to lose their vitamins on storage. Peas held in the pods for six days in a cool place, although still excellent in appearance, had lost some of their vitamin content. Apples held in cold storage from October to April and May—a normal period for the variety used—lost half their vitamin C. Apples canned in October from the same lot still had their original vitamin content when tested eight months later.

Canned tomatoes and canned spinach have been tested three years after canning and no evidence was found that the storage of these canned foods results in any appreciable loss of vitamins. In fact, the canned tomatoes after three years were as rich in vitamins as raw tomatoes. Hence the tomatoes lost no appreciable amount of their vitamins either on canning or during subsequent storage. Canned strawberries were tested sixteen months after canning and found equal to raw strawberries in vitamin content. Canned foods thus have three distinct advantages from the standpoint of their vitamins:

1. They are always canned promptly after harvesting.

2. Oxidation, which destroys the vitamins, is not permitted to take place in commercial canning as it does in open-kettle cooking.

3. After canning, the vitamins in canned foods are apparently stable and may be stored for long periods with insignificant or no loss.

From authoritative data certain comparisons are possible. Canned tomatoes are richer than orange juice in vitamins A and B and are only slightly lower in vitamin C. Canned peas are many times richer than orange juice in vitamins A and B and have considerable vitamin C content. Spinach is among the richest sources of vitamin A, with the exception of cod-liver oil, and is richer even than butter fat; the vitamin A content is not lowered by canning. Canned spinach has been found to be also a good source of vitamin C. Orange juice, butter, and cod-liver oil, are used in these comparisons, because they have long been regarded as containing certain vitamins in abundance and are commonly used as standards for comparison.

Canned cabbage, peas, spinach, apples and peaches were shown to be several times richer in vitamin C than the same foods purchased daily on the New York market and home cooked according to the directions of home economics schools. Canned strawberries, tested about sixteen months after canning, canned apples, and canned peaches, tested about eight months after canning, were found to be equivalent in vitamins to raw strawberries, apples, and peaches, respectively, purchased daily in the New York markets when these fruits were in season.

Why are vitamins more effectively conserved in commercial canning than in open-kettle or so-called home cooking? Canners have not revised their processes for the purpose of conserving vitamins. This is due not to a lack of interest on their part but to a lack of necessity for so doing. Not all is yet known as to the stability of each vitamin under varying conditions. It is well known, however, that oxygen acts destructively toward certain of the vitamins and that heat accelerates the effect of the oxygen. It is likewise known that if the oxygen is effectively removed, the action of the heat is practically nullified.

It has long been realized in the canning industry that oxygen in the can, even in almost unbelievably small quantities, is deleterious in several ways, and in some cases leads to serious losses. A small amount of oxygen in a can of peas or corn will cause a trace of red oxide of iron (rust), which later is converted to jet-black ferrous sulphide by the sulphide evolved from the food. The oxygen in apples causes them to darken in areas around the core during processing and subsequently corrodes the can. As a result, even before the vitamins were known, canners had worked out procedures that excluded oxygen from the can.

It has been pointed out that a complete diet is a complex thing. The known chemical substances without which life cannot be sustained indefinitely would total almost half a hundred. Any one food can supply only a limited number of these. Hence, a reasonable variety is absolutely necessary and a wide variety of foods throughout the year is a valuable safety measure.

A striking illustration comes to mind in the case of iodine, one of the inorganic essentials of a complete diet. Great sections of this country have virtually no iodine in the soil. Hence it is not produced in the waters or in the foods, either animal or vegetable, of such regions. Widespread goiter is the result, in some regions more than half the population being afflicted. Iodine in foods is more satisfactory for this condition than the addition of iodine to water supplies or its administration in other forms. Sea food of all kinds are outstanding in their iodine content, and

there is ample evidence of their value in this respect. Practically no inland fish are canned. Therefore, canned fish products of all descriptions may be regarded as containing an unusual amount of iodine. The oils in fish products usually contain vitamins A and D.

It must be borne in mind always that a diet, even though complete in its chemical constituents, will not produce its optimum effect unless eaten with relish and enjoyment. The diet of certain individuals is governed by habit, but for the majority, monotony is not conducive to the greatest pleasure in eating. Modern industry has supplied us with such abundance and variety that we are more fortunate nutritionally than ever before, from the standpoint of having all components of a complete diet supplied as well as from the standpoint of variety.

PRACTICAL PROBLEMS IN FEEDING PEOPLE*

J. L. HENNESSY

Hotels Statler Company, Inc.

The problems of the hotel and the hospital, or other institutions of the latter type, are somewhat dissimilar, so that the clearest and most complete explanation of the equipment, materials, and personnel used in the business of feeding people in hotels may have very little bearing on the problems the hospital dietitian faces in her daily work.

The major problem of the hotel man is that of feeding people—whereas this is only an incidental problem in the operation of a hospital. The hotel man must be as conscientious, as earnest and as industrious in the operation and service of food to his guests as is a hospital—but his efforts are directed toward the variety of the food, its attractiveness, such novelty as possible in the selection of food or in its preparation, and last and always to be considered, its saleability. This does not imply that he disregards the purity of his materials nor fails to use as painstaking care in his preparation as does the director of the hospital kitchen—certainly he should, and usually does do so. In addition, he must continually devise new and better ways of equipping his plant, preparing his product and serving it to his guests, whose business he can only hold by pleasing them.

In our present day civilization, every business and every individual is in some way affected by each new invention or development. The catering departments of our hotels are affected by the skyscraper office building housing a transient business population of ten thousand; by rapid means of transportation making it possible for thousands of people—in New York City a million—to commute to the city; and by the apartment hotel, increasingly popular as a residence for families.

Lighter type foods, arranged in attractive plate combinations are preferred by guests, particularly for luncheon, since the average city man or woman spends the greater part of the day in offices to which he has been brought by train or subway, and carried up the necessary twenty flights by elevator. Why should he eat quantities of the energy giving foods for lunch when mechanical inventions make it unnecessary for him

* Presented before the American Dietetic Association, Detroit, October, 8, 1929.

to use that energy? Another essential point that the business man or woman must keep in mind is the question of easily digested foods. An active outdoor person is able to take care of a luncheon consisting of heavy soup, meat, rich sauces, potatoes and vegetables, and plum pudding, but the office man finds that such a luncheon seriously interferes with his efficiency in carrying on the afternoon's work.

The food must be plain and simply cooked. A home made bread pudding, or a dish of stewed fruit, is far more popular for dessert than a plum pudding. People are also demanding the type of food that they want at popular prices. We must have "reducing" foods on our menus, for fashion and health authorities agree that smartness, efficiency and well-being are attained only when the weight corresponds to that given on the health chart.

We must keep in constant touch with the "new in nutrition." If an authority on nutrition announces that one of the elusive vitamins is found in certain vegetables, then we must have those vegetables on our menus. Physicians are treating many diseases by placing their patients on carefully planned diets. Hotel restaurants must be able to meet the demands of the most common types of these cases. We must have gluten bread, for example, and other low-carbohydrate foods. We must not overlook the modern feeding of children. The child from the average American home is being brought up with the idea that careful selection of food is necessary. These children will be our guests ten years hence and they will be careful and fastidious about their eating.

Fortunately for us, foods that meet most of the demands of our guests can be assorted into groups, and by having several of each group always on our menus it becomes comparatively simple to meet the requirements:

First: We must have milk

Second: Grains, especially whole grain cereals must be used in food products, thus the necessity of whole wheat bread, bran muffins and breakfast cereals made from whole grains

Third: Vegetables and fruits are important as a source of minerals and vitamins, therefore they must be found both in the raw state as well as cooked. We must have them the entire year

Fourth: Lighter forms of protein foods—eggs, cheese, nuts, fish, fowl, and smaller portions of meat

Fifth: We must recognize that fats and sugars are the energy giving foods. They are the foods that tend to increase weight and, therefore, should be used in moderation in the dishes on our menus

The catering department of the Hotels Statler Company began three years ago to make plans to meet modern food demands. We first started with a small experimental kitchen in our Executive Offices in New York City, with Miss Marie Casteen in charge—the idea being to try out recipes that were distinctly of the home type. Most of our recipes have been developed from small quantity, favorite recipes of our friends. Much time was spent in this preliminary work.

The next step was to try out these recipes in a hotel. We selected our Boston House, the newest one in the Statler system because a new hotel represents the last word in modern equipment and up-to-date methods of food preparation. Women were put in the pastry shop to prepare the home type desserts under supervision of Miss Casteen. We constantly kept in mind that our pies, cakes and desserts had to be of the highest standard and quality it was possible for us to produce. After a year, a woman well known in Boston for her knowledge of food, and having many years' experience, was selected as Consulting Dietitian to the Chef. She supervises the women pastry cooks and those in charge of preparing vegetables. She is also consulted by the Chef and the Maitre d'Hotel in regard to American types of food and properly balanced combinations.

This same work is now being carried on in all our hotels. We have a Standard Pastry Recipe Book, Standard Salad Book, Standard Entrée Book, Sandwich Book, etc. These recipes are taken out to the houses, and used by men cooks. When a recipe is tried for the first time, every step is carefully supervised so that it is given a fair test. When it has been worked out with the cook in charge and satisfactory results obtained, we consider that it has been set up and the chefs are henceforth held responsible for the quality of that particular item.

Our Experimental Kitchen at the Executive Offices is still being used to test out new recipes and new combinations. New food products on the market are first sampled by the catering executives and careful tests made. The person in charge of this work is constantly in search of new ideas. Much time is spent in visiting high class tearooms, laboratories and experimental kitchens of food manufacturers and also food service institutes of magazines. All the food sections of the women's magazines and newspapers are reviewed and new recipes or ideas are filed for reference. We are building up a library for our catering department with all the best standard recipe books. and all the new books on food and nutrition.

Vegetable cookery in hotels is the greatest problem at the present

time. Whatever method is finally adopted, it will be based on the most satisfactory scientific method of cooking vegetables in the home, but this method will have to be modified to suit our needs. Some headway has been made in several of our smaller hotels, but this work, too, is still in the experimental stage.

Among the changes that have been made on our menus during the past year are the blue plate combinations served in the Grill Rooms and Roof Gardens of several hotels. These combinations are light and very attractive. Vegetable luncheon suggestions now appear on the main dining room menus of most of the Statler Hotels. Fresh vegetables are bought the entire year and can always be found on our menus. For example, here are some combinations taken from the menu of Hotel Statler, Boston.

Creamed diced fresh cooked vegetables au gratin
New string beans with broiled bacon
Pan fried egg plant and tomato rings, browned butter
Creamed new lima beans, corn and green pepper au gratin

The following are some of the cold meat combinations now being served and featured in Hotel Statler, St. Louis, and Hotel Pennsylvania, New York City, and to some extent, in Hotel Statler, Detroit:

Sliced Chicken and Virginia Ham, Potato and Egg Salad, Orange Marmalade
Baked Ox Tongue with Homemade Potato Salad and Stuffed Mangoes
Roast Lamb, Fresh Vegetable Salad and Currant Jelly
Roast Sugar Cured Ham, Sliced Hawaiian Pineapple and Cream Cheese
Ribs of Prime Beef, Spiced Pear and Green Vegetable Salad
Toasted peanut butter sandwiches, boiled rice, fresh raspberries, lemonade

Our new Cereal-Fruit-Sandwich and Beverage Combination is one of our recent attempts to satisfy summer luncheon patrons:

Toasted American Cheese and Bacon Sandwich, Sliced Peaches and Corn Flakes, Ice Tea
Sliced Peaches and Cream, Puffed Wheat, Toasted English Muffins, Iced Coffee

The Salad Plate combinations are very popular:

Fruit Salad, Cream dressing, Toasted English Muffins and a beverage
Chicken and Vegetable Salad, Olives, Orange Bread Sandwiches and a Beverage

While we believe that we are making some progress in meeting the demands of our guests, we realize that we live in a rapidly changing age. The demands of today will not be the demands of another year. We are quite sure, however, that while there may be changing fads and fancies in food, the demand for well cooked and simply cooked food will never change.

HOUSEHOLD SCIENCE BUILDING, UNIVERSITY OF TORONTO

HYGIENE BUILDING, UNIVERSITY OF TORONTO

EDITORIAL

Toronto Ready to Welcome American Dietetic Association Convention

Newsletters, railroad folders, and other literature have already detailed in full just what the thirteenth annual convention in Toronto has to offer. As you read this, you are one of those who already have purchased your transportation to Toronto—or you are regretting that you can not be among those present. This year in Toronto it seems that all forces have combined to give you the best possible opportunities for a successful trip: a beautiful Canadian city; an enthusiastic local committee which has been working hard to perfect arrangements; headquarters in one of Canada's largest and finest hotels; a program that spells interest from beginning to end; and local trips and sights of especial worth. All of these are to be topped off with the proposed Post-Convention Tour.

We can not add to the detailed information which has already been conveyed to you through the newsletters. On the eve of the convention, itself, we can but add—*"See You in Toronto!"*

Dorothy Knight Hassler,
Publicity Chairman.

The University Hospital, Ann Arbor

The University Hospital at Ann Arbor, Michigan, is a 1225 bed hospital with an occupancy of ninety-five per cent, according to Susa P. Moore, in the June, 1930, *Hospital Topics and Buyer*. In this hospital the work of dietetics and housekeeping is grouped into one department under the direction of Miss S. Margaret Gillam, President-elect of the American Dietetic Association; her department, as organized, covers teaching, scientific investigation, and administration.

The teaching consists of a diet therapy clinic where patients are instructed by the physician and dietitian; instruction to nurses with special diet service experience in the metabolism department, the childrens' wards, and the private pavillion; sixteen hours' instruction to medical students in their junior year, and one full day in the observation of routines including the assembling of metabolism diets in their senior year; and a six months' course in theoretical and practical dietetics to home economics graduates having a B.S. degree.

Pay cafeteria service for the hospital employees, exclusive of the staff, nurses and internes, has been in successful operation for some time. Central tray service is used for all patients on special diets and also to all private pavillon patients—a total average of about 150 trays daily. There is ward supervision by a dietitian of all food service for patients, as a connecting link between physicians in charge and the dietary department.

The assistant director of housekeeping, in addition to the hospital housekeeping, has the responsibility for the twenty-eight houses for resident nurses, as well as two dormitories which house about 650 of the personnel. The following table illustrates the total and per capita costs for food and supplies:

Per Capita Costs—December, 1929

DEPARTMENT	FOOD COSTS	PERSONNEL	SUPPLIES	GRAND TOTAL	MEAL CENSUS	PER CAPITA COST		
						Food	Personnel	Supplies
Main building.....	$17,491.24	$7,803.99	$364.61	$25,659.84	37,994	0.463	0.25	0.009
Commercial Cafeteria..	3,474.01	1,647.94	51.17	5,173.12	8,126	0.42	0.20	0.006
2 metabolism Diet Kitchen.....	680.14	386.44	14.85	1,081.43	918	0.74	0.42	0.001
6 private Diet Kitchen.	1,311.31	552.77	49.05	1,913.13	1,623	0.80	0.34	0.03
Convalescent Hospital..	4,468.08	2,366.27	38.13	6,872.48	9,285	0.48	0.25	0.004
South Department.....	3,039.59	986.01	37.11	4,062.71	5,517	0.55	0.17	0.006
Simpson Memorial.....	150.32	194.80	4.83	349.95	218	0.68	0.89	0.02

The arrangement of all management detail on a strict financial accounting basis, the close coöperation that exists between the dietary, medical, and surgical departments, and the management of the important departments of dietetics and housekeeping centralized under one head, have clearly contributed to the successful administration of this hospital.

M. P. H.

The Rôle of the Dietitian in the Walter Reed General Hospital

"The Dietetic Department, Walter Reed General Hospital, is divided into three groups, Administrative, Scientific, and Teaching. Assisting the Medical Officer, Director* of the Dietetic Department, are the Assistant Director and fourteen graduate dietitians.

"The administrative dietitian assigned to the hospital mess, should have a thorough knowledge both practical and theoretical of the general character of

* The Director Dietetic Department is Major A. L. Parsons Medical Corps, U. S. A. Miss Grace H. Hunter is Chief Dietitian.

food supplies, including the cost and market conditions, buying, receiving, checking, storing and distribution. She is responsible for the planning of a well balanced menu supplying sufficient calories, with as much variety as the ration and market allow. She submits orders for all food, has general supervision of the preparation and cooking of food and food waste. She arranges the duties of the employees and has supervision of their work. She checks the amount of food and food supplies to the wards and makes ward rounds conferring with the doctors, nurses and patients. The food services in the Mess Hall, Dining Rooms and wards are part of her responsibility. The dietitian has a great deal of influence in controlling the food budget of the hospital. This is one department that spends a vast amount of money and can waste much if not properly supervised. The food budget must be regulated to effect every possible economy and still maintain a high standard of efficiency.

"The scientific dietitian in charge of the special diets with her knowledge of foods and chemistry and other related subjects, should prove almost indispensable to the physician in filling prescriptions for diets and by aiding him in treating and observing his patients, in a scientific way. Here relations and interests are not limited to any special group but she has become responsible for all diets, general, as well as special. Diabetes calls for a nutrition expert, who can be responsible for the complete handling of the diet. The dietitian plans the menu, figures the diet, is responsible for the accurate weighing of the food and distributing of the food to the patient. She keeps a complete record of his diet each day, a copy of which is presented to the patient, when he leaves the hospital. There are many diseases which call for scientific handling by the dietitian. Nephritis, arthritis, gout, gastro-intestinal diseases, obesity and anemia are the principal ones. The diet for pernicious anemia especially has made vast strides in recent years and a great deal of experimenting is being done with the ketogenic diet for epilepsy. This hospital sends out seventy-five hundred special diets per month. As the value of diet becomes more appreciated a greater per cent of our patients will be treated by special diet. The field of chemical research in nutrition is very promising and in such research the dietitian must be prepared to render active service.

"The teaching dietitian has an important function to perform at this hospital in relation to the teaching of the student nurse, the patients and the student dietitians. A graduate dietitian is employed at this hospital as an instructor in nutrition. Courses are given the student nurses in "Elements of Nutrition and Cookery" and in "Diet Therapy." Running parallel with these lectures is the practical work in the diet kitchen, which consists of six weeks' training. The student receives an intensive laboratory course, under the close supervision of a dietitian and obtains practical knowledge of how to prepare weighed diets and cook special foods. The nurse is assigned to a ward where she gains experience in serving the diets. Twelve one-hour periods are given to the nurse by a dietitian to the discussion of problems in nutrition. A graduate

dietitian assigned to the Metabolic Section, teaches the nurses to administer the correct diet to the patient and great stress is placed on the service of the food. It has long been proven that food prepared with the utmost care, may be ruined by careless serving.

"The dietitian on this section also instructs the patients. Dietary treatment usually has to be continued for months and sometimes years. It very often controls diseases rather than cures them. If a patient is to gain anything from his treatment he must take hime with him a knowledge of how to continue the regimen followed in the hospital. The value of teaching the patient has been shown by the way in which the diabetic has been able to take care of himself. The more intelligent diabetic patients are taught to plan and figure their own diets. Teaching is applied to many other cases, as the anemic, the nephritic, the obese, gastro-intestinal cases and asthma. The patient who understands his case, progresses the most.

"The student dietitian also receives instruction from the doctors and dietitians. She will be responsible in the future for all the work outlined in this article. Therefore, her course must include instructions along three important fields, administrative, scientific, and teaching."

The above quotation, from an article appearing in the July, 1930, *Military Surgeon*, and quoted by permission of the Editor, Colonel Kean, clearly portrays the broad scope of the dietitian's work in an Army hospital. It is of interest, with present requirements for dietitians in Government service identical with the qualifications demanded of prospective members of the American Dietetic Association, that the field for service and the responsibilities of the Army dietitian have developed so materially.

CURRENT COMMENT

The Status of Dietitians in the Government Services

Report of Committee

Dietitians, when first admitted to government services, were classified in the sub-professional group. This grading was legitimate as the educational requirements at that time were for two years of home economics training of university or college grade. After the educational requirements for membership in The American Dietetic Association were raised to a four year college course in home economics, with six months experience, the requirements for dietitians in Government services were changed to the same standard. However, the classification of dietitians in the government has remained the same.

The high educational requirements which are necessary for the position of hospital dietitian, the importance of the job, the responsibility and value of the dietitian in the hospital system entitle her to grading in the professional service.

The status of the entire profession is seriously affected by the rating given them by the Government, and we cannot afford to let the matter stand. This Committee has the hearty support of the Executive Committee, and asks your interest and active coöperation to raise the status of dietitians in the Government from sub-professional to professional.

LILLIAN B. STORMS, PH.D.,
Chairman.

RECENT INFORMATION FROM THE DEPARTMENT OF AGRICULTURE

CottonSeed meal, commonly used as a cattle feed, has been found so be a substance rich in vitamin G, the anti-pellagra vitamin, and by far the cheapest source of this vitamin, accordin, to Dr. W. W. Skinner, of the Bureau of Chemistry and Soils, "In addition to being rich in vitamin G, Stevens found cottonseed meal to be an important carrier of vitamin B, the anti-beriberi vitamin," Doctor Skinner said. "Yeast is considered by chemists to be the richest known natural source of these two vitamins, and the work of Stevens has demonstrated that commercial cottonseed meal, even in the unrefined state, is the only substance that even approximates yeast as a source of both of these vitamins. Yeast is now used as a specific in the treatment of pellagra, but the cost of yeast is high to sufferers from the disease."

Stevens used rats in his first tests of the nutritive value of cottonseed meal. The results indicated that this meal is an unusually rich source for vitamins B and G, and this unexpected discovery led him to further studies in an effort to determine how the vitamin content of cottonseed meal compares with other materials. This work led to the conclusion that cottonseed meal ranks next to yeast in content of vitamins B and G.

Vinegar, in interstate commerce in the eastern district of the Food and Drug Administration, during the past project year complied with the provisions of the law in nearly every case, says W. R. M. Wharton, district chief. The administration seized only three lots, a total of 1140 gallons, and issued citations, preliminary to prosecution, to two manufacturers. Shortage in volume, the mislabeling of diluted acetic acid as cider vinegar, and the dilution of cider vinegar with water, the only violations found last year are rarely encountered now in interstate shipments.

Pure food laws. W. W. Vincent, chief of the western district of the

Food and Drug Administration, inaugurated a radio program to enlist the coöperation of consumers in the enforcement of the Federal food and drugs statutes. "With the coöperation of the broadcasting stations," Mr. Vincent explains, "I hope to advise consumers in the West of the way in which they may make fully effective the protection which enforcement of the pure food and drug laws affords to consumers. Until consumers learn the meaning of statements on food and drug labels, and until they govern their buying accordingly, we shall not realize the fullest possible public benefit from the enforcement of the Federal and State laws."

White and whole-wheat breads, according to specialists of the Department, are both wholesome foods. They are among the most important and cheapest sources of energy and protein in the diet. The composition and value in the diet of whole-wheat and white bread vary not only with the differences in the flour used, but also with the amount and character of other added constituents. Whole-wheat or graham flours, which contain the bran and germ portion of the grain, have lower bread-making capacity and are more susceptible to spoilage, so cannot be handled as readily commercially. In general they contain more essential minerals and vitamins and more roughage than white flour. No person subsists on one food. Each food should be chosen in relation to the other constituents of the diet. Bread, either white or whole-wheat, is always an economical source of energy and protein in any diet. The form may be left to the choice of the individual when the remainder of the diet is so constituted as to contribute the necessary minerals, vitamins, and any necessary roughage.

"It should be evident," said Doctor Woods of the Department, in commenting on the official statement, "That because a particular food lacks a certain vitamin or other important food factor its value is not necessarily thereby seriously reduced in a mixed diet, in which other foods contain the necessary elements. Practically all dietitians nowadays recommend a diversified diet. The American people have available from the farms, ranches and fisheries everything needed for producing a sound body. Those who give out information on food values should be particularly careful not to draw unwarranted conclusions as to food values based on the presence or absence of some particular factor."

The ice cream manufacture utilizes six billion pounds of milk, the product of one and a third million cows, annually. Few dairy farmers realize how much of the milk they produce goes into the manufacture of ice cream, and only a few of the millions of consumers of ice cream realize the magnitude of the industry, according to O. E. Reed, chief of the Bureau of

Dairy Industry. The quantity of dairy products used in the manufacture of ice cream in the United States, calculated in terms of whole milk, is almost equal to the quantity used in the manufacture of cheese, and is greater than the quantity used in the manufacture of condensed and evaporated milk.

Ice cream is an American institution. The making of ice cream, as an industry, had its beginning about the time of the Revolution, it is said. The first newspaper advertisement offering ice cream for sale seems to have been one which appeared in the New York Gazette of May 19, 1777. One story says that Dolly Madison, the popular first lady of the land when James Madison was President, was the first to introduce ice cream into the social events at the White House. Another gives to Mrs. Alexander Hamilton, wife of the financial genius who so greatly aided George Washington in firmly establishing the Republic, the credit for having been the first to serve ice cream at a notable social function.

Market classes and grades of dressed veal and calf carcasses. This bulletin, the title of which is self explanatory, should be of particular use to the institution buyer. It is for sale by the Superintendent of Documents, Washington, D. C., price $.25.

Publications of the Bureau of Home Economics—July, 1923–January, 1930 have been arranged by subject and assembled in booklet form for distribution.

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BOOK REVIEWS

Infant Nutrition. A Textbook on Infant Feeding for Students and Practitioners of Medicine. By W. McKim Marriott, B.S., M.D. Price $5.50. St. Louis: The C. V. Mosby Co., 1930, pp. 375.

From his great experience as head of a children's hospital, teacher of undergraduate and graduate students, and scientific investigator, Dr. Marriott has undertaken the difficult task of writing a book on infant nutrition. He has done this on the sound basis of our present day knowledge of the physiology and pathology of infancy. After describing the normal growth and development of the infant, the food requirements of the organism in its quantitative and qualitative aspects are discussed, based on measurements of the energy metabolism of the growing individual. After detailed discussion of the essential factors of the diet, a summary of the food requirements is given on which the scientific feeding of an infant should be founded. This leads to a discussion of the physiology of the gastrointestinal tract and its contents, with its peculiarities during the early period of life.

In the following chapters, the feeding of the baby is described. Breast feeding as a physiological method with its great advantages is given the first place. If the mother is unable to nurse a baby, artificial feeding becomes inevitable. The principal food which can replace human milk is cow's milk. Its chemical composition, bacterial content and the different methods of making it a safe and digestible food for the infant are discussed. Separate chapters are devoted to the feeding of whole sweetened milk mixtures, evaporated milk mixtures and acid milks. In these three chapters, the author gives the key to an intelligent preparation of a formula in a clear and simple way which is illustrated by numerous examples. The chapter on proprietary foods gives the special indications under which these foods may be used. The first eighteen chapters of the book close with the discussion of the nutrition of the infant during the second year of life.

In the remaining sixteen chapters, the disturbances connected with nutrition are discussed. Underfeeding in a quantitative and qualitative way as a chief cause of malnutrition in its different degrees is stressed. Ample space is given to the treatment of malnutrition. The succeeding chapter is on diarrhea due to different causes, among which infection plays an important rôle. That diarrhea is a symptom and not a disease is particularly stressed and should be treated according to the etiology. Considerable space is devoted to this subject, especially to its severest form, anhydremia. Recent work from the St. Louis Hospital is included in this valuable chapter. Dysentery and celiac disease are discussed in special chapters. The symptoms, vomiting and constipation, are dealt with and treated according to their respective causes. A special chapter is devoted to pyloric stenosis, including medical and surgical treatment. The care of the premature child is described in a short and instructive way. The modern viewpoint of the etiology and therapy of rickets, tetany and scurvy is given. There are excellent illustrations in these chapters. In a very well written chapter with A. F. Hartman, the chemistry, pathology and therapy of the body fluids in such conditions as anhydremia, acidosis and alkalosis are described. The chemical composition of the body fluids, the mechanism of its changes and its restitution by modern methods of treatment can be found here. This goes far beyond the scope of the ordinary book on infant nutrition. The relation between development of teeth and nutrition is recognized in a separate chapter. Finally, the technic for collection of samples of urine,

stool and blood, blood transfusion and administration of other fluids is given. In the appendix, the drugs most commonly used during infancy can be found. This book summarizes our knowledge of infant nutrition in an excellent manner, based on sound scientific judgment and practical experience. It can be highly recommended for every student of infant feeding. Its clear style will make it enjoyable reading for everyone interested in this subject. The text is well illustrated and serves to increase the high value of the book.

LUDWIG SCHOENTHAL, M.D.,
New York City.

Bread. By Harry Snyder. Price $2.50. New York: The Macmillan Company, 1930, pp. 293.

This is a posthumous collection of some of Harry Snyder's writings. A biographical sketch by Andrew L. Winton is interesting to those of us who were not familiar with the scope of Mr. Snyder's activities, though many knew he was the "outstanding cereal chemist of his day." For many years Professor Snyder spent much time and effort in getting at facts pertaining to wheat flour and wheat bread and in combating the false statements published about them.

These papers are written with scientific accuracy, yet are made interesting and readable by Professor Snyder's candid presentation of his subject. His stories and methods of demonstrating facts are ingenious. The reputations of George Washington and Abraham Lincoln as millers are new to most of us.

It is surprising how few of his statements have been out-moded by more recent findings. Almost all of these papers were read before associations of millers or cereal chemists; in book form they give to the dietitian and home economist a very good reference. An excellent bibliography of bulletins is appended.

LULU G. GRAVES.

Ultraviolet Light and Vitamin D in Nutrition. By Katharine Blunt and Ruth Cowan. Price $2.50. Chicago: University of Chicago Press, 1930, pp. 229.

This book is of particular value to physicians, dentists, dietitians and teachers of nutrition at the present time as a guide in properly digesting and assimilating the mass of information and occasionally extravagant claims following the discoveries with reference to the use of ultraviolet light and vitamin D in nutrition. This work should also serve as a guidance to the biochemist in further experiments in this field.

As the author states in the foreword, modern preventive medicine is constructive, and among the most notable features of the progress of the last quarter century has been our development of the knowledge of the vitamins. Of all the vitamins, most seems to be known concerning vitamin D, which comprises the subject of the book. The authors very thoroughly cover the known sources of vitamin D, summarizing the more important recent research concerning this vitamin and ultraviolet light, and in particular their influence upon the calcium and phosphorus of the body. The development of research on the subject has been outlined; tooth development and the antirachitic vitamin; ultraviolet light and man's use of this discovery; the distribution of vitamin D in commonly available foods; irradiated foods and irradiated ergosterol; the quantity and preparation of calcium and phosphorus in the diet; the effect of different foods on calcium and phosphorus metabolism; a discussion of studies during pregnancy and lactation; experimental work on vitamin D with normal and abnormal adults; and concluding with a summary of work on rickets. The book probably offers the most reliable and widest source of information on this subject at present available.

Physiology and Biochemistry in Modern Medicine. Sixth Edition. By J. J. R. MacLeod. Price $11.00. St. Louis: The C. V. Mosby Co., 1930, pp. 1074.

The steady increase in general knowledge rather than discovery, a feature in advances in physiology during the past three years, has made it necessary quite generally to expand and change the content of this volume in its sixth edition. The use of smaller print has kept the book to its previous

size. Following the work of Bayliss on "Principles of General Physiology," Stewart's, Howell's, Starling's, and Halliburton's "Human Physiology" and Leonard Hill's "Recent and Further Advances in Physiology," with the more recent work of Lucas, Adrian and others, the author has felt free to pick and choose, from monographs and original papers, topics ordinarily passed over cursorily in the usual text-book, with the result that the references are somewhat more extensive. This volume offers a reliable and up to date reference book for the use of the student of nutrition.

The Treatment of Diabetes Mellitus with Higher Carbohydrate Diets. By W. D. Sansum. New York: Harper and Bros., 1929, pp. 309.

This volume is one of the series of medical monographs now in the course of preparation by the publisher. Dr. Sansum makes a plea for the diabetic diet based as nearly as possible on normal requirements. While professedly written for use as a text-book for physicians and patients, Part I seems better adapted to the physicians' needs, while Part II, a series of dietetic lectures and instructions given to clinic patients would be understood by and be applicable to the more intelligent patient.

The book is most attractively bound and printed. It contains numerous menus and several recipes.

The School Lunch. Second Edition. By Emma Smedley. Price $4.00. Media, Pa. Published by the author, 1930.

This book entirely rewritten and supplied with new illustrations should prove of great value to those who are interested in institution management and especially so to those whose chief interest is food supervision. The author gives a detailed account of the Public School lunch system of Philadelphia, with which the writer has been connected as director from its inception to the present time. One may realize the magnitude of the work by the fact that financially it amounts to more than a million dollars annually.

The book deals with the history and aim of the school lunch and its development in the Philadelphia schools; with its organization and personnel, giving in much detail the duties of supervisors, dietitians, general helpers and student aids. Equipment of kitchens, dining rooms and offices are listed and described. There are also interesting chapters on the purchasing of supplies and the system of records and accounting including the new mechanical book-keeping system. One cannot help feeling that an almost ideal organization has been created, thus affording a model for study and comparison. While the book explains in detail the physical plant and the methods of operation, the ideal of the organization, "to build up the health of a city's children," is never lost sight of.

A new chapter dealing with the individual cafeteria, such as an employee's lunch, is added to this edition. The printing and the make-up of the book are good. It is well illustrated and interestingly written.

LENNA F. COOPER.

The Dietary of Health and Disease. Second Edition. By Gertrude I. Thomas. Price $2.50. Philadelphia: Lea and Febiger, 1930, pp. 276.

The purpose of this book is to provide an intermediate text which will serve as a basis for instruction in schools of nursing and in departments of home economics. The author has attempted to present concisely the essentials of food chemistry, food preparation, and diet therapy.

In this edition the text has been adequately revised so that its scope is consistent with the progress which has been made in the dietary treatment of disease. Special recognition has been made of the newer liver therapy for anemia, recent development in diabetic feeding, the influence of pregnancy on teeth, and the basic diet; a new vitamin chart has been added.

How to Cook for Children. By Estelle M. Reilly. Price $1.50. New York: Putnam's, 1927, pp. 250.

This book is unique in that it happens to be a cook book for mothers, written by a woman who is herself the mother of six chil-

dren. While obviously profiting from the undoubtedly practical advantage of daily contact with a generously sized family, the book occasionally shows evidence of the need of a trained collaborator, whose guidance might have made the book more authoritative and useful to the mother of a family.

Marketing and Housework Manual. New Edition. By S. Agnes Donham. Price $2.00. Boston: Little, Brown and Co., 1930, pp. 249.

The subject matter of this book is the result of twenty years of study and experience in teaching household management. It is planned for the use of teachers of household management in high school and college courses, developing an outline which teachers may use in presenting their subject, and which students may follow. Originally planned in 1917, new conditions, knowledge and methods have made it desirable to revise it. Its simplicity and brevity make it an aid to the busy or inexperienced housewife. The chapter on menu-making should be of assistance not only in the practice kitchen, but to the hospital dietitian and the homemaker. The other chapters make the book a useful reference to the student nurse in her dietetics course, also to students in high school and college classes in home economics.

Book of Diets, Second Edition Revised. By McGuire Clinic, St. Luke's Hospital, Richmond, Va.: Published by the Staff, 1930, pp. 48.

This bulletin was compiled in an attempt to solve one hospital's problem in obtaining simple uniform methods of ordering diets for hospital patients. Duplicate leaves of the book, containing special diet lists, have been separately printed so that they may be readily available for the patient on leaving the hospital. In making lists of available foods for diets, the authors have attempted to make their selection broad enough so that menus might be easily compiled for all patients, either rich or poor, urban or rural.

Seven Hundred Sandwiches. By Florence A. Cowles. Price $1.75. Boston: Little, Brown and Co., 1929, pp. 246.

The simple sandwich invented one hundred and fifty years ago by John Montague, Fourth Earl of Sandwich, has been developed, largely in America, into a combination of foods only limited by the imagination of the cook. Miss Cowles, realizing the constant and insistent demand for new ideas in sandwiches, has compiled a collection of interesting combinations with plans and specifications for attractive architectural designs of construction. The seven hundred sandwiches enumerated will interest not only the homemaker and the hostess searching for ideas for Sunday night suppers, but should also appeal particularly to the tea room and cafeteria manager.

M. P. H.

Cape Cod Cook Book. By Suzanne Cary Gruver. Price $2.00. Boston: Little, Brown and Co., 1930, pp. 214.

One turns with delight to a collection of famed New England—specifically Cape Cod—recipes, fresh from their original habitat. Many of the older recipes are family affairs and have not before appeared in print. The homely suggestion to "use judgment," so commonly found in these old recipes, has been translated into terms comprehensible to the modern cook. Many of these refreshingly new, yet old, recipes will be welcomed as an assistance in providing more interesting and appetizing menus.

M. P. H.

CURRENT LITERATURE

KATHLEEN M. LEWIS

American Journal of Diseases of Children

Vol. 39, May, 1930

Antirachitic effect of winter sunshine through celoglass. T. S. Wilder and C. Vack.—p. 930.

* Underweight children: Increased growth secured through the use of wheat germ. A. F. Morgan and M. M. Barry.—p. 935.

* Five years' clinical experience with lemon juice milk. L. H. Barenberg, H. Abramson and W. H. Messer.—p. 948.

Antirachitic value of winter sunlight in the latitude of Boston. E. T. Wyman, P. Drinker and K. H. MacKenzie.—p. 969.

* Pellegra secondary to gastro-intestinal disease. R. W. B. Ellis.—p. 1036.

* Infant feeding in England and in France from 1750 to 1800. T. G. H. Drake.—p. 1049.

Vol. 39, June, 1930

* Association of keratomalacia with other deficiency diseases. A. A. Weech.—p. 1153.

Human milk flow. I. G. Macy, H. A. Hunscher, E. Donelson and B. Ninis.—p. 1186.

* Nitrogen metabolism of children, with special reference to the protein requirement of children of preschool age. J. P. Parsons.—p. 1221.

* Asthma in children. The rôle of ketogenic and low carbohydrate diets in the treatment of a selected group of patients. M. M. Peahkin and A. H. Fineman.—p. 1240.

Underweight children: Increased growth secured through the use of wheat germ. The authors criticize the modern American diet from the standpoint of the exclusion of whole cereals from the diet. The Food Research Institute has shown that the modern tendency is toward an increase in the use of milk, sugar, fruit and vegetables, and a decrease in the use of meats and cereals.

Two groups of underweight children ranging from 11 to 13 years of age were compared as to height, weight, chest expansion, vital capacity and alveolar carbon dioxide. The experimental diet included 3 ounces of rolls made from 50 per cent wheat germ and 50 per cent white flour, while the control group took the usual white flour rolls, having practically the same protein, fat and carbohydrate content.

The results were striking, in that the weight increase in the group fed with wheat germ were three times as great as in the controls. The height increases were significant in the experimental group in comparison with the control.

The alveolar carbon dioxide tension was also increased in the greater number of children fed the wheat germ than in the control. The explanation for this is that undernutrition is generally accompanied by chronic partial starvation, therefore resulting in acidosis. Any agency which increases the food intake tends to decrease the acidosis.

These experiments have shown the importance of the whole cereals, including the grain embryos, in the modern American diet, and the possible results from a marked deficiency of the antineuritic vitamin.

Five years clinical experience with lemon juice milk. This study of the use of lemon juice milk was made on 145 infants who received lemon juice milk for periods of from 6 to 12 months. The age of the infants ranged from less than 3 months to 12 months of age. "The standard formula for lemon juice milk recommended by Hess is as follows: Milk 710 cc.; water 355 cc.; sucrose 15 grams; and lemon juice 21 cc." The pH of this mixture is about 5.30.

By an analysis of the weight tables compiled from the infants who received lemon juice milk, and those used as controls, the former show a better rate of growth than those who were fed other milk preparations.

Another study was made of the effect of lemon juice milk on the feces of infants during the period from January to May, taken when the respiratory infections are most prevalent, and are generally associated with

diarrhea. The tables show that the infants who received lemon juice milk had fewer cases of diarrhea and the cases occurring were milder than the control group.

Also, another study was undertaken in which twenty-five infants varying from 1 to 2 years were given 3 per cent lemon juice in their milk in addition to the regular diet. The control group was made up of fifty children of corresponding age who did not receive the lemon juice. The same four month period, from January to May, was chosen for the experiments. According to the table the group who received the 3 per cent lemon juice milk had a greater number of infections, but the intestinal disturbances were milder and of shorter duration.

The authors have found, through clinical experience, that lemon juice milk is of great value in feeding children 3 years and over suffering from pneumonia and other respiratory ailments.

Pellagra secondary to gastro-intestinal disease. During the years of 1919 to 1926 Bryan, Graves and Barnes had studied cases of pellagroid dermititis. In every case operations showed presence of carcinoma which when removed allowed patients to recover from symptoms of pellagra.

O'Leary, in 1926, described other pellagra cases which, upon investigation, were found to be connected with peptic ulcer, carcinoma of stomach or colon, and gastric distress.

The diagnosis of pellagra rests ultimately on the presence of inflammation of dermatitis. In pellagra of childhood the skin manifestations are always the earliest recognizable symptoms. It is safe to say that tuberculosis antedated a pellagrous condition. It is important to examine patients with pellagra for co-existing gastro-intestinal diseases which may be responsible for a food deficiency.

Infant feeding in England and in France from 1750 to 1800. Infant feeding during the latter half of the eighteenth century passed through many stages. Information regarding method of preparing and utensils used in feeding different mixtures was published. Infant mortality aroused medical men to action. In London, for the period from 1762 to 1771, the mortality was 62 per cent under five years and 49 per cent under two years. Unreasonable therapeutic measures were recognized faults. In 1750, the English pediatric text by Walter Harris placed the immediate causes of diseases of children on diets and advocated a soft diet for infants. Broughet, the physician to King of France in 1754, gave preference to milk of animals rather than human milk. He suggested "pap" as a substitute for milk. Van Swicten, physician to the Queen of Hungary in 1759, argued defects of milk and advocated "pap". However, if milk was to be used, the animal was much better than human source. Buchan, of Philadelphia, imputed infant diseases to overfeeding. He insisted that breast feeding for infants, from 6 to 7 hours after birth to one year of age, was most beneficial. Alphonse Le Roy, in Paris in 1803, discovered a fugitive gas in milk which "is so volatile that it escapes as soon as milk is in contact with air." Therefore, human milk was thought better because there was no means for the escape of the gas—"the vital principle of milk." In 1774–1776, Downman advised maternal nursing on account of the laxative action of new milk. Buchan, in 1776, gave a modern view of food for children, "Nature not only plans out the food proper for an infant but actually prepares it. Neither art nor nature can provide a proper substitute for it."

Thus up to the beginning of nineteenth century maternal nursing was recognized by all writers as the best method of nursing infants. Cow's milk was presumed to be the best artificial food if fed while warm.

Association of keratomalacia with other deficiency disease. A study of thirteen children with keratomalacia is presented, in which it is shown that in some instances keratomalacia is associated with rickets while in others it is not. No definite association of keratomalacia with beriberi or scurvy was observed. Edema and anemia in some of the patients is noted but no conclusions are drawn. The entire group of children showed a marked undernutrition.

Nitrogen metabolism of children, with special reference to the protein requirement of children of preschool age. Evidence is presented to show that a healthy child of the age group from 4 to 8 years can maintain a positive nitrogen balance on 1.1 gram per kilogram. A diabetic child can maintain a nitrogen balance and develop normally on 2.2 gram per kilogram. To maintain the nitrogen balance on a minimum protein intake, the withdrawn protein must be replaced by an isodynamic equivalent of carbohydrate or fat. A negative nitrogen balance results in acute infections when children refuse a great deal of food.

Asthma in children. The rôle of ketogenic and low carbohydrate diets in the treatment of a selected group of patients. In this series of fifteen selected children ranging in age from 3 to 15 years, the ketogenic, and relatively low carbohydrate—high fat diets alone have proved efficacious to the extent that the chronic asthmatic state in the majority of instances was controlled or entirely cleared up for some time. A maintanence diet with a maximum ketogenic ratio of 3:1 was reached within three weeks and this level was maintained for periods ranging from four to ten months. Ten per cent protein was allowed.

American Journal of Public Health

Vol. 20, May, 1930

* The sanitary aspects of refuse collection and disposal. Report of the committee on refuse collection and disposal.—p. 509.

* Bacteriological basis for the effective pasteurization of ice cream. Report of the committee on dairy products and eggs.—p. 492.

Vol. 29, June, 1930

* Thermal death points of pathogenic bacteria in cream and ice cream. C. Oldenbusch, M. Frobisher and J. H. Shrader.—p. 615.

Accepted foods. Editorial.—p. 640.

Bacteriological basis for effective pasteurization of ice cream. Extensive inquiries were sent to five hundred ice cream companies who report that the temperature and holding periods range from 140 degrees F for 30 minutes to 165 degrees F for 30 minutes and up to 185 degrees F for ten minutes. Since no great amount of experimental work has been done to determine the best temperatures and time, the health officers of the various municipalities usually take over this responsibility. They found the B. coli count, as used and interpreted in milk control, and set requirements to be used which they thought would kill B. coli.

However, the usefulness of the coli determination would be of little importance if it were shown that pasteurization of commercial ice cream at 145 degrees F for 30 minutes is sufficient to kill pathogenic organisms. In as much as the number of pathogenic organisms involved was far greater than would be obtained under natural conditions of contamination, they concluded that the time and temperature of 143.5 degrees F, recommended by the committee on dairy products and eggs, of the American Public Health Association for the pasteurization of milk, allows an ample margin of safety for pasteurization of cream and commercial ice cream mixtures.

The sanitary aspects of refuse collection and disposal. Civilized communities are increasing their demands for freedom from any contamination arising from refuse disposal.

House Preparation—Rules and regulations concerning methods for preparing refuse for collection differ in various communities.

Transportation—In any scheme of collection, the length of hauling and method of disposal should be taken into consideration. Unless the collection is under a very carefully drawn contract, municipal collection and disposal is much more desirable. Wagons, trucks and containers used in transporting should be of metal, and should be washed or disinfected daily.

Disposal on land—Ashes, metal, glass and crockery may be dumped on land, but paper, boxes, etc., should be separated out, burned, and all fires extinguished. Dumps of mixed refuse, where necessary, should be made with garbage at the bottom, ashes on top, and the exposed surface promptly covered with at least four inches of earth. These dumps should be located at remote points and not on the banks of a water course.

Dumping at Sea—This is a satisfactory method for ashes or other heavy sinkable material, but not for garbage.

Incineration—Incinerator should be placed in an industrial location, but not so low that gases of combustion might reach habitations.

Reduction by chemical action—These plants require intelligent supervision and should be seriously considered in large cities.

Fermentation—This method is best for suburban or rural communities where land is not too costly and fertilizer can be used to advantage; such practices are only in the experimental stage.

Thermal death points of pathogenic bacteria in cream and ice cream. The time and temperature (thirty minutes at 143.5 degrees F.) for the proper pasteurization of cream and commercial ice cream allows an ample margin of safety. The article includes the experimental procedures in detail.

American Journal of Physiology

Vol. 93, May, 1930

The influence of nutrition on the response to certain amino acids. The effect of fasting. C. M. Wilhelmj and F. C. Mann.—p. 69.

* The influence of inorganic iron on the anemia of rice disease in pigeons. O. W. Barlow.—p. 156.

* The influence of vitamin B on the inanition, anemia and bacteriemia of rice disease in pigeons. O. W. Barlow.—p. 161.

* The influence of nutrition on the response to certain amino acids. The effect of fasting followed by diets high in carbohydrates. C. M. Wilhelmj and F. C. Mann.—p. 258.

Studies on nerve metabolism. The carbohydrate metabolism of active nerve. E. G. Holmes, R. W. Gerard and E. I. Solomon.—p. 3421.

Vol. 93, June, 1930

* The fatal effect of the total loss of gastric juice. L. L. Dragstedt and J. C. Ellis.—p. 407.

The absorption and excretion of water and salts by enarine teleosts. H. W. Smith, N. Farniacci and A. Breitweiser.—p. 480.

Experiments on the isolated whole gall bladder of the dog. B. Halpert and J. H. Lewis.—p. 506.

* The rôle of the lung in the metabolism of fat. C. Markowitz and F. C. Mann.—p. 521.

* The excretion of calcium through the intestine. N. B. Taylor and A. Fine.—p. 544.

Blood fibrin studies. The concentration of fibrin yielded by canine plasma in relation to dietary factors. H. M. Vars.—p. 554.

* Studies in glandular metabolism. H. E. Himwich and M. A. Adams.—p. 568.

Influences of inorganic iron on the anemia of rice disease in pigeons. Pigeons were fed on a diet of polished rice, iron free and deficient in vitamins A, B and C, for eight weeks. It has been shown that pigeons do not require vitamins A and C, hence only B and iron were lacking. After eight weeks, a therapeutic dose of $FeCO_3$ was given daily, in addition to the rice and vitamin B. Another group received the same dosage with no vitamin B. The group receiving the iron, plus vitamin B, was not influenced in any manner. The group receiving the vitamin B deficiency developed rapid inanition. The iron received by this group did not counteract the anemia. The degree of anemia in pigeons receiving a larger iron dosage was greater than the anemia of pigeons on an iron free diet.

Thus the addition of iron, in the form of ferous carbonate, to an iron-free rice diet, does not benefit the anemia which results. Larger iron dosages accelerates the disease. Vitamin B thus seems to be the cause of the development of rice disease.

The influence of vitamin B on the inanition, anemia and bacteriemia of rice disease in pigeons. The aim of this experiment was to ascertain the "relative importance of the dietary vitamin B deficiency, the rice diet per se, and the bacteriemia and possibly toxemia as causative factors in the development of rice anemia." The beneficial action on the blood by certain cathartics, namely magnesium sulphate, and lactose in the diet, seemed to indicate that the baser factor or factors in the development of rice disease might be partly due to toxemia or bacteriemia as an immediate result of vitamin B deficiency, or as a mechanical or chemical result of faulty digestion or impaction of the rice. Three series of experiments were carried out which covered the pertinent phases of the question, and the conclusions to be drawn as a result of these are as follows:

1. That pigeons on polished rice diets varied in their requirements of vitamin B, the variations being most significant in cases of voluntary starvation. However, inanition resulting from vitamin B deficiency required higher doses of the vitamin for regeneration or for weight maintenance than did normal pigeons.

2. The coincidence of the bacteriemia and the development of anemia indicated a possible causal relationship—direct or indirect—between the anemia and the invasion of the blood. Though this parallelism is close, it is found incomplete in some respects, showing the existence of other factors.

3. The addition of lactose to the diet of polished rice showed that both the bacteriemia and the anemia may be corrected by substances other than vitamin B, the lactose being beneficial since its use results in a diminution of bacteriemia and of intestinal toxemia as well.

Influence of nutrition on the response to certain amino acids. When the same quantity of amino acid is administered to a dog that has been maintained under standard conditions of diet, exercise, and environmental temperature, the response of the respiratory metabolism is constant. When amino acids are administered intravenously at the same rate of injection, the nature of the response is equally constant. Differences were observed in the behavior of the respiratory quotient after the intravenous administration of alamine and glycine.

These experiments indicate that the nutritional condition of the animal is a significant factor, and that the specific dynamic action, as well as the respiratory quotient, may be varied in the same animal by the alteration of the nutritional status.

The fatal effect of the total loss of gastric juice. The continued loss of gastric juice from the body produces changes in the blood chemistry similar to those occurring after pyloric obstruction. There occurs a prompt and progressive decrease in the concentration of blood chloride, an increase in the carbon dioxide capacity, and a shift in the pH toward the alkaline side. The continued loss of gastric juice from the body is accompanied by symptoms of depression proportionate to the changes in the blood chemistry. The total loss of gastric secretion caused the death of animals used in this experiment.

The rôle of the lung in the metabolism of fat. The fat used in the experiment was a measured amount of thirty per cent cream which the animals drank voluntarily. After the ingestion of the cream, the fat in the lung had not increased, nor was there any appreciable difference in the amount of fat in the blood proximal and distal to the lung. In only one instance in which a highly emulsified preparation of fat was injected intravenously was there an increase of fat in the lung, and a definite diminution of fat in the blood from the femoral artery, in comparison with the blood drawn from the right ventricle. The authors conclude that the experiments have not furnished evidence for the hypothesis that the lung plays a particular rôle in the metabolism of fat.

The excretion of calcium through the intestine. There is much discussion and question concerning calcium excretion in tetany. Extensive experiments have shown that there is a small excretion of calcium through large and small intestines of normal cats. Calcium injected into the veins of animals practically disappears from the blood in three hours. An excess of calcium does not leave the body.

Studies in glandular metabolism. Studies on the metabolism of glands have yielded little definite information regarding the mechanism supplying the energy necessary for secretion. If glycolysis is the process by means of which glands derive energy, lactic acid must be formed in large quantities. Experiments show that there was no increased production of lactic acid during the secretion of the glands, thus glycolysis does not serve as a source of glandular energy.

Archives of Pediatrics

Vol. 47, May, 1930

* Alimentary anemia. F. Hynamson.—p. 267.
* The use of gelatin as a supplementary food in the infant's dietary. I. O. Elterich, D. H. Boyd and A. Neff.—p. 386.

Alimentary anemia. Alimentary anemia may occur at any age between a few weeks and five and one-half years. It has been seen to develop on a full milk diet, whether breast or bottle-fed. In such cases, iron was found to be of practically no value, and a balanced diet the only available cure.

Under-feeding for long periods is not known to produce anemia at all in the sense of a reduction of red cells and hemoglobin. It is therefore conclusive, that alimentary anemia is chiefly a predisposition found only in a small percentage of all infants. It might be possible to correlate it to conditions such as prematurity, rickets, intestinal troubles and defective alimentation.

The use of gelatin as a supplementary food in the infant's dietary. Clinical cases have not proven very satisfactory because of lack of complete control of the dietary. Eleven children were collected and studied in a hospital where scientific measures could be used and the results were most satisfactory. The study covered a fairly long period, and relatively large amounts of gelatin were used in connection with regular infant food and formulae. Alpine light was used in place of cod liver oil because of the variability of the nutritional factor. Results were as follows:

1. No apparent unfavorable consequences appeared from administering large amounts of gelatin to very small infants over fairly long periods.
2. Gelatin does not accelerate growth out of proportion to calories ingested.
3. Gain in weight is in proportion to protein carbohydrate ratio.
4. Gelatin is an incomplete protein, and therefore not comparable to protein milk when added to formulae.
5. Four level tablespoons of powdered gelatin may be added to the day's formula without increasing the volume.
8. In unusual allergic infants, gelatin may prove to be an important food factor when either breast or cow's milk cannot be tolerated.

Hospital Management

Vol. 29, May, 1930

* Two types of pay cafeterias please hospital and personnel.—p. 37.

Food service organization and costs in 17 "100 bed hospitals."—p. 84.

Vol. 29, June, 1930

* How many of your dishes wear out? R. D. Brisbane.—p. 23.

* Are the personnel of your hospital fresh vegetable conscious? L. G. Graves.—p. 37.

Contrast three types of food service at Grand Rapids.—p. 84.

Two types of pay cafeterias please hospital and personnel. After many years' use of non-paying cafeterias in both the University of Michigan Hospital, Ann Arbor, and the California Hospital, Los Angeles, pay cafeterias were established to improve conditions and provide for a certain group of personnel, the guests of patients and hospital visitors, and to provide employees with better eating quarters and allow a selection of food. The two types of pay cafeterias (one employing help with a definite salary not including free meals, and the other receiving a stipulated cash allowance, or salary plus meal tickets) have proven quite successful and have eliminated many of the former disadvantages. Some of the advantages are:

1. Permits selection of food and quantity desired.
2. Results in practically no waste, since employee receives what he likes and chooses.
3. Affords full cash wages which attract higher class of employees, giving them a greater value of wages in relation to work.
4. Adds dignity to food service.
5. Reduces cost per meal to employees.

How many of your dishes wear out? Sutter Hospital, in California, with a "central service," serves from twenty-two to thirty thousand meals per month. Strict discipline, notices, letters, and dismissal seemed to make no difference in the "smashing of dishes" until a "bonus and forfeit" system was instituted which appears to have solved the situation for this hospital. Every breakage which occurs is listed, and at the end of the month a sheet is prepared showing the breakage and bonus of each person. Crockery is charged at cost and dropped silver is also fined. A bonus of $1.00 per month is paid to anyone not breaking or dropping more than 10¢ worth, if one breaks or drops more than 25¢ he is charged with all against him, however, those who break or drop nothing receive $1.25 extra for the month. The previous crockery and glassware replacement amounted to over $100 monthly and it has now dropped to around $50 per month.

Are the personnel of your hospital fresh vegetable conscious? Despite the fact that it has taken many years to bring vegetables before the public, and to prove their importance as rich sources of minerals and vitamins, much more needs to be done to give them their rightful place in the dietary. Vegetables should be carefully selected, prepared and cooked in order to retain all the nutritive elements and yet be appetizing and palatable —especially in hospitals and institutions where large quantity cookery is necessary and often ruinous to the flavor, color and appearance of vegetables. Often overcooking, preparation of food too long before serving, or not using the proper proportion of water may cause such results, but with intelligence and care in the initial cooking, such difficulties ought to be easily overcome.

Journal of American Medical Association

Vol. 94, May 3, 1930

* Hypertension associated with allergy. G. L. Waldbott.—p. 1390.
* The "high caloric" diet. A. J. Beams and E. M. Geraghty.—p. 1397.

Committee on foods.—p. 1407.
Laxative action of bran. Editorial.—p. 1410.
Calcium of irritative edemas. Current comment.—p. 1411.

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* The low protein diet. A. J. Beams and E. M. Geraghty.—p. 1499.

The action of vitamin D. Editorial.—p. 1505.
Transmission of rabies by milk. Current comment.—p. 1507.

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* Nephritis in childhood. C. A. Aldrich.—p. 1637.
* Production of a substance causing food poisoning. E. O. Jordon.—p. 1648.

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* Scurvy following a restricted diet in colitis. S. L. Immerman.—p. 1757.

Sugar consumption. Editorial.—p. 1763.

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* Effect of certain liver extracts on the blood sugar of diabetic patients. H. Blotner and W. P. Murphy.—p. 1811.
* Household mechanical refrigeration. C. P. McCord. —p. 1832.

The study of anemia. Editorial.—p. 1842.
Mineral metabolism during the reproductive cycle. Editorial.—p. 1844.

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The specific gravity of the urine as a test of kidney function. F. H. Lasknet and L. H. Newburgh.—p. 1883.
Newer aspects of the therapeutics of viosterol. A. F. Hess, J. M. Lewis and H. Riokin.—p. 1885.
* The occurrence of diabetes during pregnancy in a woman bearing large babies. H. Bowcock and J. R. McCord.—p. 1917.
Committee on foods. Council on pharmacy and chemistry.—p. 1919.

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* Insulin: Its use and misuse. N. B. Foster.—p. 1971.
* Foods and diets in diabetes. N. B. Foster.—p. 1975.

Pseudoleukemic anemia of young infants. Editorial.—p. 1998.
Vitamin C in milk. Editorial.—p. 2000.

Vol. 94, June 28, 1930

Peptic ulcer: Etiology, history and surgical treatment. A. D. Bevan.—p. 2043.
* Oxalic acid in vegetable greens. Editorial.—p. 2067.

Hypertension associated with allergy. The terms allergy and hypertension have long been associated, and a study of six cases, made in an effort to establish clinical proof of the relation, showed that certain cases of unexplained hypertension may be caused by allergy. In individual members of two families, the syndrome of hypertension occurred in association with allergic diseases. A few cases of "essential hypertension" exhibited definite allergic features and showed an improvement on an allergic-free management, therefore the author believes that a certain number of cases of "essential hypertension" are allergic in origin.

The high calorie diet. Atony of the stomach is often due to undernutrition usually caused by nervousness, bad eating habits, or indigestible foods. It may also be due to chronic diseases, such as tuberculosis or typhoid where there is great loss of weight. Meals remedial for such a condition must have moderate bulk, be easily and readily digested, and have a high fat content. Complete and interesting suggestions, as well as menus for use in managing this type of high calorie diet are included.

The low protein diet. Suggestions for using the low protein diet are:

1. Use exact basic formula as prescribed by physician. Modifications may be made

as to salt content, purine allowance, total fluid intake, use of stimulating beverages.

2. Specify number of grams protein for each person. Daily range is 35 to 45 grams.

3. Avoid highly seasoned foods and food condiments.

4. Include vitamins A, B and C.

5. Include 1 pint milk daily, unless otherwise ordered.

6. Incorporate sufficient bulk for a daily bowel action.

7. Remember calories are not specific foods, but only a measuring stick for these.

8. Keep bread, potatoes and other starchy foods at a minimum.

9. Give proteins mainly in the form of milk and eggs.

10. Use graham bread and crackers, and all kinds of fruits and fruit juices.

Clinical types of nephritis in childhood. Nephritis in childhood is the disease in its true form, uncomplicated by age and the consequent breaking down of the vital organs, and seldom accompanied by other diseases. The author recommends a general diet, except in certain cases of edema.

The production by staphylococci of a substance causing food poisoning. A recent outbreak of food poisoning in Chicago was traced to eating Christmas cake. Yellow staphylococcus was isolated from sample of the cake. Experiments show that various strains of diverse origin and different cultural characteristics are capable of producing a substance which when taken by mouth produce a gastro-intestinal disturbance.

Scurvy following a restricted diet in colitis. A patient suffering from colitis was placed on a restricted diet for eleven months. During the first two months the diet consisted of such food stuffs as rice, custard, junket, chicken broth with barley, soft boiled or poached eggs, milk toast, boiled milk, white meat of chicken, and lamb chops. After this period, properly prepared carrots, spinach and peas were added to the diet. A relapse resulted. Scarcely any vegetables were eaten during the next four months. At the end of this time, the diet was limited almost entirely to three quarts of boiled milk a day. Typical scurvy symptoms were observed. The juice of three oranges was added to the daily diet with marked success, all signs of scurvy disappearing within a month.

Effect of certain liver extracts on the blood sugar of diabetic patients. From the study of three cases, it is suggested that certain aqueous liver extracts contain a substance which is effective in reducing the blood sugar of diabetic patients, is non-toxic, and exerts an effect on the concentration of blood sugar very like the action of insulin if taken in small doses, especially for eight hour periods.

Household mechanical refrigeration. Due to the inquiries and deaths caused recently by certain refrigeration practices in households, in general storage and in transportation, the committee on Poisonous Gases of the American Medical Association made an investigation and offered an estimation of the extent and nature of the danger involved. The committee reports the results of the investigation.

The occurrence of diabetes during pregnancy in a woman bearing large babies. An interesting observation reported is that the babies of diabetic mothers are often oversize at birth. The appearance of true diabetes with typical symptoms and hyperglycemia is a more frequent occurrence during the pregnancy of a previously non-diabetic woman, than the occurrence of pregnancy in a diabetic individual. Several authorities suggest that some women may be diabetic only during pregnancy. One interesting illustration is of a woman who always gave birth to very large babies and who developed diabetes and hyperglycemia during the last two of her six pregnancies, requiring insulin for control of the disease during one. The diabetic conditions apparently subsided, however, after these two periods.

Insulin: Its use and misuse. Statistics show that, despite the wide-spread use of insulin, there is an increase rather than a decrease in the mortality for diabetics. The medical profession, in general, seems to have a great fear of using insulin freely. Certain members of the profession seem even more

afraid of insulin shock than of diabetic coma. The patient should be thoroughly taught the use and effect of insulin and how to regulate its use for their own needs, since no two cases are alike.

Foods and diets in diabetes. It is generally advisable to start the patient on a maintenance diet, and if the sugar disappears from the urine after a few days, a mild diabetic case is indicated, and the patient is kept on the maintenance diet until the blood-sugar falls to normal. On the other hand, if the urine sugar does not disappear, insulin should be used to hasten matters, beginning with 10 units before meals and increasing by fives until the sugar disappears. To determine the adequacy of the diet, the patient should be allowed to continue his usual mode of living, with careful observations of his weight. At present there is a great variety of foods prepared especially for the diabetic. Some of these foods are palatable and some are not. The general scientific opinion is that the patient should eat what he desires to eat, figure the cost in starch, and pay in units of insulin.

Oxalic acid in vegetable greens. A recent investigation by Ryder at the University of Chicago showed that the oxalic acid content of spinach obtainable in that city during the summer months ranged from 0.5 to 0.7 per cent. Dandelion greens, kale, turnips and mustard greens were found to contain no oxalic acid. It is a matter of common experience that normal persons can eat large quantities of spinach day after day, and with no apparent ill effect, despite the considerable amounts of oxalic acid that it contains. "Many persons will fiendishly rejoice, we suspect, when they learn that the spinach, so conscientiously eaten under advisement, has some dietary limitations."

Journal of Biological Chemistry

Vol. 87, May, 1930

Studies on intestinal absorption. The absorption of lactic acid. G. T. Cori.—p. 13.

Studies on intestinal absorption. The absorption of ethyl alcohol. C. T. Cori, E. L. Williaume and G. T. Cori.—p. 19.

* The lack of relationship between the development and cure of rickets and the inorganic phosphorous concentration of the blood. A. F. Hess, M. Weinstock, H. Riokin and J. Gross. —p. 37.

The depletion of muscle sugar by adrenalin. F. Bischoff and M. L. Long.—p. 47.

* Studies of the metabolism of women. R. Okey, J. M. Stewart and M. L. Greenwood.—p. 91.

* Fat soluble vitamins. The antirachitic value of cow's milk as modified by exposure of the cow to sunlight and to radiations from a quartz mercury vapor lamp. H. Steenbock, E. B. Hart, B. M. Riising, C. A. Hoppert and S. Basherov.—p. 103.

* Factors influencing the distribution and character of adipose tissue in the rat. L. L. Reed, F. Yamaguchi, W. E. Anderson and L. B. Mendel.—p. 147.

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* Glucose tolerance in avitaminosis due to low antineuritic vitamin B. S. Lepkowsky, C. Wood and H. M. Evans.—p. 239.

* Factors determining the ergosterol content of yeast. C. E. Bills, O. N. Massengale and P. S. Prickett.—p. 259.

Fat metabolism. A study of the rate of digestion of fats as determined by the chylomicrous of the blood. E. H. MacArthur.—p. 299.

* The fluctuations of the capillary blood sugar in normal young women during a twenty-four-hour period. M. H. Dionne and J. J. Arenstarm.—p. 393.

* The neutral fat of beef liver and other tissues. W. R. Bloor and R. H. Snider.—p. 399.

The lack of relationship between the development and cure of rickets and the inorganic concentration of the blood. During recent years, there has been a tendency to regard the decrease of inorganic phosphorus in the blood as the fundamental phenomenon of rickets. It is the criterion used by many in judging whether or not active rickets is present. The belief that rickets may be associated with the normal concentration of inorganic phosphorus is based on the following data:

1. When 10 per cent dry milk was substituted for an equivalent amount of flour in the Sherman-Ruppenheimer diet, rickets was regularly induced, regardless of the fact that the inorganic phosphorus concentration in the blood was from 6.5 to 7 mg.

2. When 20 cc. of fluid cow's milk, or of irradiated skim milk, was added to the standard ration, the phosphate curve still lacked confirmity.

3. By the addition of small amounts of irradiated ergosterol, the phosphorous concentration of the blood was raised to the normal level, but no calcifying action in the epiphysis of the long bones was found.

4. When, however, the animal received cod liver oil, definite evidence of healing of the rachitic lesions was found.

5. When full doses of irradiated ergosterol were administered, prevention and cure could be relied on. This suggests that irradiation may elaborate a factor which increases the inorganic phosphorus in the blood, apart from its anti-rachitic action.

6. Extreme rickets induced by a very marked excess of calcium were unaffected, or only affected to a slight degree by feedings of very large amounts of cod liver oil or of irradiated ergosterol. This suggest that there must be a definite ratio of calcium to phosphorus.

In addition to the systemic disturbances characteristic of rickets, one may conclude that a local disturbance at the epiphysis prevents the anchorage of calcium and phosphorus in the cartilage of the bones.

Studies of the metabolism of women. In women, calcium metabolism is influenced to some extent by the activities of the reproductive tract. The serum calcium does not vary in concentration to any great extent during menstruation, however, it generally has a slightly lower value a few days before, and a higher value several days following the monthly cycle.

Fat soluble vitamins. The antirachitic values of cow's milk are not affected to any appreciable extent by exposing the cow to sunshine or artificial light. Disturbed calcium metabolism cannot be cured by antirachitic activity.

Factors influencing the distribution and character of adipose tissue in the rat. Rats were fed foods rich in fat or carbohydrates; 83 per cent of the calories were supplied by Crisco, soy bean oil, mutton tallow, or cornstarch. The diets were designed by Anderson and Mendell to supply protein, inorganic salts and vitamins. Twice as much total fat (fatty acids) was deposited by rats fed the diet rich in Crisco as those fed cornstarch. The distribution of stored fat is independent of diet. Male rats store more fat in the perianal depot, while females tend to store it in the genital depot. Rats on starch diet stored less fat. No change in distribution was observed in any condition other than forced exercise, voluntary running, and undernutrition. There was an increased intermuscular fat storage in forced and voluntary running, a decrease in genital fat storage in forced activity and undernutrition.

The degree of saturation is dependent upon diet. Different depots showed slight variations in degree of saturation. The chemical nature of fat was not changed by activity or amount of food eaten.

Glucose tolerance in avitamosis due to low antineuritic vitamin B. The conclusions reached through these experiments were that animals may suffer a long time without appreciably lowering the glucose tolerance, but that sooner or later the sugar tolerance was decreased in rats not fed vitamin B, and that in clearly expressed beri-beri there was little or no tolerance for glucose.

Factors determining the ergosterol content of yeast. The amount of ergosterol in yeast varies greatly, ten times as much may be found in one sample as in another. Ergosterol also differs in kind. Some forms are identical while others are isomeric.

Sensitivity to the conditions of the culture is the cause of the variation of ergosterol content. Yeast dried rapidly contains much more of this substance than that dried more slowly. Rapidly dried yeast averages about 19 per cent ergosterol.

The fluctuations of the capillary blood sugar in normal young women during a 24 hour period. The object of this experiment was to determine if sex causes any great fluctuations in the regulation of blood sugar. The subjects were nurses in training who carried on their usual duties. Tests were taken during the 24 hour period by the hospital medical force. The results were that the concentration of sugar (total reducing sub-

stances) in the capillary blood of normal young women while fasting and partaking of normal activities for 24 hours has slight if any variance. Moderate activity produced a slight elevation of blood sugar.

The neutral fat of beef liver and other tissues. The tests were carried out on livers and other tissues from which the lipids were extracted. The liver was the only organ examined which contained worthwhile amounts of neutral fat. The liver does not act as a fat store, but keeps up the task of desaturation. The neutral fat of beef liver is more unsaturated than the fat of other organs. This unsaturation is possibly due in part to the protective function of liver. The fat percentage was quite variable, but the phospholipid content was quite constant for each organ and characteristic of the same.

Journal of Home Economics

Vol. 22, May, 1930

Nutritional anemia: A review of recent literature. S. L. Smith.—p. 365.
A bureau of domestic science proposed in 1898. P. V. Betters.—p. 378.

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* The motor truck and the food buyer. C. B. Sherman.—p. 458.
Nutritional anemia: A review of recent literature. S. L. Smith.—p. 467.
Food standards conference. Editorials.—p. 489.
* The vitamin A content of the liver of normal hogs and of hogs developing experimental rickets. R. Gibbons and C. B. Barney.—p. 491.

The motor truck and the food buyer. The motor truck has valuable and adverse qualities. The rapid transportation of perishables now supplies small towns with fresh foods so essential in the diet. Motor truck transportation is a boon to vacation regions, as often there are no railroad connections and the motor truck goes directly from orchards to resort markets. Prices, as well, are lowered for perishables too small, too low grade, or too ripe for railroad shipment. The motor truck also tends to eliminate waste, as in the case of wet strawberries, which can be saved only by quick handling.

On the other hand, the use of the motor truck discourages standardization and decreases the use of sprays on fruits and other preventative measures which produce a high grade produce. Improvement in the selection of varieties and choice of good seed is often retarded.

The vitamin A content of the liver of normal hogs and of hogs developing experimental rickets. The storage of vitamin A varies under differing feeding methods; this experiment was carried out to study the effect of the lack of vitamin D on the storage of Vitamin A. Liver was the organ chosen because of the abundance of vitamin A and the investigation was carried on with hogs and rats.

Liver from rachitic hogs (produced by absence of sunlight) was fed to rats to determine vitamin A content. The average gain per week for the rats receiving 1 gram daily (amount determined to give desired rate of growth) of liver from rachitic hogs, was more than 50 per cent greater than the gain in those rats receiving the same amount of liver from control hogs. The possible explanation is that the rachitic hogs stored a greater amount of vitamin A because the amount of food ingested was necessarily greater in order to produce the same gain in weight acquired by the control animals. Rachitic hog livers had sufficient vitamin A stored to produce 52 per cent more growth than that obtained from hog livers exposed to sunlight. Rachitic animals, because of slower growth, were able to conserve and store more vitamin A.

Journal of Nutrition

Vol. 2, May, 1930

The significance of surface area determination. H. H. Mitchell.—p. 437.
The surface area of single comb white leghorn chickens H. H. Mitchell.—p. 443.
* A comparative study of liquid and dry milk as anemia producing diets. G. C. Supplee, O. D. Dow, G. E. Flanigan and O. J. Kahlenberg.—p. 451.
* Dietary requirements for fertility and lactation. XXII. Further studies of the rôle of milk fat in fertility and lactation. B. Sure.—p. 485.
* The comparative value of different food proteins for reproductions and lactation in the rat. I. Beef muscle, liver and kidney. M. M. Clayton.—p. 491.
The chemistry of vitamin D. Editorial Review. F. L. MacLeod.—p. 517.

Study of liquid and dry milk as anemia producing diets. The increased quantity of iron in the dried milk, and other changes which may have come from the drying process, seem to give dried milk more anti-anemic properties than can be obtained from liquid milk.

The rôle of milk fat in fertility and lactation. An investigation of various milk powders show that there are none that can be considered sufficient within themselves for lactation. A supplement of vitamin B, usually in the form of yeast concentrate, is necessary in all cases.

Value of food proteins for reproduction and lactation. When vitamin E was supplied in adequate amounts, the kidney protein seemed to be the best for lactation and reproduction. Liver protein was second, and beef muscle last. When a high protein level of 20 per cent, or over, was fed so that the question of the quality of protein did not enter in, the order was reversed as follows: beef muscle, liver and kidney. Some of the rations were low in vitamin B and this was thought to be the reason for liver ranking high when no supplements were made. However, due to so many variables and changes which accompanied the cooking processes it was difficult to determine which protein was best.

Modern Hospital

Vol. 34, May, 1930

Coördination: The secret of a smoothly run hospital. S. Hamilton.—p. 62.

A suggested scheme for buying supplies J. R. Rhoads.—p. 69.

* Developing efficient food service in the sanatorium. G. L. Bellis.—p. 89.

How to save money in the heat, light and power department. J. C. Doane.—p. 102.

* Treating simple obesity in an out-patient clinic. T. T. Currier.—p. 134.

Vol. 34, June, 1930

* New devices that will be welcomed in the dietary department. L. G. Graves.—p. 138.

* The child diabetic: his needs and how they may be cared for. F. B. Floore.—p. 142.

Developing efficient food service in the sanatorium. Muirdale, a hospital and sanatorium for tuberculosis operated by Milwaukee County, solved its food service problem by the construction of tray conveyors consisting of electrically heated, insulated metal carts, each having a built-in, hot water pipe circulating system, and having fourteen separate compartments for trays. These are stationed along the rear wall of the kitchen where electric current from wall outlets is supplied for heating the water in the carts to the desired temperature. The heating of the carts is timed to insure the maximum desired temperature at the exact time for beginning the service.

The loading station is arranged to reduce lost motion to a minimum. With a well organized group of servers, the service is very rapid. One hundred and fifty trains are loaded in about thirty-five minutes. As soon as the carts reach the wards the trays are ready to be carried to the patient. In this way, the patient receives his food hot and with a minimum amount of handling.

The dietary department has centralized equipment, service, and storage of food stuffs, and provides an opportunity for the effective supervision of all tray service by the dietitian.

Treating simple obesity in out-patient clinics. For the past five years, Peter Bent Brigham Hospital in Boston has carried on an out-patient clinic in nutrition. During this time there has been an opportunity for observing a large group of obese individuals, the majority of whom were women between the ages of twenty and sixty. The women studied were examples of true obesity. The patients seen in the nutrition clinic were first examined by the doctor in the general medical clinic. He noted on the record any condition which called for special consideration. This record was sent to the clinic with the patient.

During the early period of treatment the patients usually had a tremendous appetite. Because of this, the use of fresh fruits between meals was allowed. After the diet had been followed a few weeks, the craving for food seemed to subside. The clinical statistics for the five year period showed gratifying results, though many of the patients failed to repeat their first visit to the

clinic and some others failed to stay on the diet regularly.

New devices that will be welcomed in the dietary department. A combination steamer and roaster is being manufactured in which both steaming and roasting may be carried on at the same time in separate compartments.

The possibility of frying foods more satisfactorily came with the invention of a new fryer. Different types of these fryers are on the market, some for use with electriity and some with gas. They may be had in monel metal or a black finish.

For the private patient's tray there is now available an artistic and practical silver bowl which may be used for serving soup, cereal or other soft foods, or it may be transformed to an ice bowl for use in serving cold drinks or iced desserts. Another device in silver is a new steak knife which has a shorter blade and a longer handle.

Paper napkins and tray covers are now being made in a variety of colors and with embroidery effects. These add to the attractiveness of the tray, and are practical, as they do way with the sterilizing and laundering of tray linen.

Vegetable parchment is replacing waxed paper. It is air proof and stronger when wet. Strongly flavored foods when wrapped in it will not contaminate other foods in the same container.

The child diabetic: his needs and how they may be cared for. Diabetic children are often accused of stealing food when the urine shows sugar, but there may be other reasons for the glycosuria. The beginning of a cold, an improper dosage of insulin, mistakes in weighing the food, lack of sufficient exercise, worry, or insulin leaking from the syringe during injection, may all cause it. If the child has stolen food, it should be a warning that there is something wrong with the treatment he is receiving. The diabetic child should be instructed so that he knows the deleterious effect of overstepping his diet and he should be encouraged to the point where he will make every possible effort to "stick to" the diet. If the confidence and understanding of the diabetic patient can be developed in childhood, it will make it much easier for him as he grows older.

Western Hospital Review

Vol. 15, May, 1930

* Opportunities in commercial work. E. M. Parker.—p. 52.
Annual meeting of the California State Dietetic Association. L. Hilgenfield.—p. 54.

Opportunities in commercial work. A relatively new field for the home economist is in the food educational work which is being conducted by many manufacturers. In the employ of a food manufacturer, the home economist acts as a liaison agent, interpreting the manufacturer's products to the consumer, while at the same time keeping the manufacturer informed and up to date on the consuming public's food requirements. The educational phase of the work consists in lecturing to groups and clubs on health subjects, related to the normal dietary, and on the use of her employer's product in original recipes and menus.

Many food manufacturers employ independent food consultants for working out specific problems. The work of a food consultant is not dissimilar to that of the educational director for a particular food concern, but the food consultant deals with many firms and with many products.

A third opening for the home economist is that of a consultant dietitian, but unless she is connected with a doctor's office or a clinic, it is a somewhat precarious vocation.

Finally, there is tearoom management, which involves an outlay of capital which the beginner cannot always afford.

In commercial dietetics, the hospital-trained dietitian will work chiefly with normal, healthy people; she must learn to give these people what they want and need.

NEWS NOTES

The Thirteenth Annual Commercial Exhibit of the American Dietetic Association promises to be an exceptionally interesting one. As usual, Monday morning has been set aside to give the opportunity of getting acquainted with the products shown.

Many of the booths are occupied by exhibitors well known to the members through many years' attendance at the Association's conventions. Members will be interested in the new products which they have to show. Many new exhibitors will also be present. There will be given ample time between meetings for discussions of the products each exhibitor is showing.

Only those firms whose products are felt by the Investigation Committee of the Association to be worthy of your consideration are allowed to exhibit. This approval means that, so far as the Committee has been able to discover, the products exhibited meet a high standard and the business ethics of the firm are satisfactory.

The firms participating in the exhibit respect the Association and its purpose. They will value your friendly expressions of interest in them and their products.

Amcoin Corporation, Buffalo, New York, will exhibit the all glass interior coffee making system. The glass interior also includes the faucets. This equipment also eliminates the necessity of repouring and keeps the beverage mellow and without deterioration in color, strength or aroma for six to eight hours. There is a definite saving of a minimum of twenty per cent in coffee and cream bills. Leading hospitals of the country are endorsing it. Booth 2.

Battle Creek Food Company, Battle Creek, Michigan, pioneer food manufacturers. We have on our list foods to meet every dietetic need. Our products are of special interest to the dietitian. Stop and register for a dietitian's complimentary assortment. Booth 40.

The Borden Company, New York City. Booth 25.

F. A. Davis Company, Philadelphia, Pennsylvania, through their Canadian representative, the Macmillan Publishing Company, Toronto. Of vital interest to everyone attending the American Dietetic Association Convention this year, the following books, which are recognized standards, should be mentioned, namely: Blum's "Practical Dietetics for Adults and Children in Health and Disease"; Lorand's "Health and Longevity Through Rational Diet"; Hess' "Feeding and the Nutritional Disorders in Infancy and Childhood"; Marcovici's "Handbook on Diet"; Pirquet, Wagner and Nobel's "The Nutrition of Healthy and Sick Infants and Children"; Hall's "Feeding, Diet and the General Care of Children"; Petty's "Diabetes; Its Treatment by Insulin and Diet, a Handbook for the Patient"; Thomas' "The Dietary Adventures of Anabil Lee"; Kibbey's "Principles of Sanitation"; and Balyeat's "Allergic Diseases, Their Diagnosis and Treatment." Booth 10.

R. B. Davis Company, Hoboken, New Jersey. Booth 12.

Detroit Dairy & Food Council, Detroit, Michigan. Booth 1.

Evaporated Milk Association, Chicago, Ill. Menus and recipes particularly adapted to the preschool child and a report of Lawrence and Koch's work showing the presence in fresh milk of antibodies which retard tryptic digestion are new and of interest to the dietitian. Dr. Lydia Robert's "Overcoming Food Dislikes" is available for distribution. Booth 27.

The J. B. Ford Company, Wyandotte, Michigan. Clean dishes at lower costs than formerly found possible,—that is what

the J. B. Ford Company is guaranteeing for their latest product for machine dishwashing —Wyandotte Cherokee Cleaner. Cherokee Cleaner does away with brown stains on dishes, washes aluminum without tarnishing, and keeps dish machines free from scale. Complete details at Booth 23.

Fremont Canning Company, Fremont, Michigan. Strained Vegetables for infant feeding and special diets will be exhibited by Gerber Products Division of the Fremont Canning Company. These products have already gained wide acceptance by the medical profession and the trade. Of special interest to dietitians is the addition to the Gerber staff of Dr. Lillian B. Storms who will be in charge of the exhibit and will be pleased to answer any questions concerning the products or to advise concerning any nutrition or diet problems. Booth 35.

General Foods Corporation, New York City. Exhibit of printed material on food selection and preparation, and on health subjects. Also a display of the products of the General Foods Corporation. Booths 33 and 34.

Christian Hansen's Canadian Laboratory, Toronto, Canada. Junket, long known and used in hospitals as a "prescribed diet" and made with Junket Tablets, is now available in flavored form and is put up in a special institutional package holding one pound. Leading hospitals are now using the Flavored Junket extensively as a dessert. There are six delicious flavors. Send for samples. See The Junket Folks at the Convention. Booth 32.

Harris Abattoir Company, Ltd., Toronto, Canada. Booth 20.

Health Products Company, Newark, New Jersey. Booth 17.

H. J. Heinz Company, Pittsburgh, Pennsylvania. Booth 19.

Horlick's Malted Milk, Racine, Wisconsin. Have you found how grateful patients are for the suggestion of Horlick's Malted Milk Tablets as a relief from the monotony of liquid diet? They have the same nourishing and remarkably digestible qualities as the powder form. Horlick's the Original Malted Milk, natural and chocolate flavors both in powder and tablet form, will be featured at the Horlick booth, and samples will be available. Booth 38.

The International Nickel Company—Monel Metal and Pure Nickel in the commercial mill forms such as supplied to manufacturers of kitchen equipment; samples of fabricated Monel Metal items; illustrations showing actual uses. This booth will serve as a center of information on the applications of Monel Metal in food service equipment and we will welcome all questions. Booth 29.

The Journal of The American Dietetic Association, Chicago. Booth 9.

The Journal of Home Economics, Baltimore, Maryland. Booth 4.

The Kellogg Company of Battle Creek, Michigan will exhibit a complete line of health cereal foods and Kaffee Hag Coffee. Dietitians will be especially interested in the new charts and pamphlets which have been published by the Kellogg Company and in the new menu and recipe service which is offered. Booth 22.

The J. P. Lippincott Company, Philadelphia, Pennsylvania, will exhibit a number of books for the nursing and allied profession, chief of which will be the outstanding success, "Nutrition in Health and Disease" by Cooper, Barber and Mitchell, of which the third edition has just been issued. Booth 43.

The Macmillan Company, New York City. Among the Macmillan books to be exhibited at Toronto the new fourth edition of McCollum and Simonds' "Newer Knowledge of Nutrition" stands out preëminently. Some of the most striking features of the new edition are the recent discoveries concerning the etiology and treatment of anemias; discussion of the dietary requirements for blood regeneration; the experience of recent years in the control of goitre through the provision of iodine; and the recent researches on the relation of diet to bone development, the calcification of fractures, and the prevention of rickets. Booth 11.

Mellin's Food Company, Boston, Massachusetts. Representatives of the Company will be prepared to furnish detailed information regarding the composition of Mellin's Food and the application of this product in the feeding of sick children or adults

where special nourishment is an important part of the treatment. Mellin's Food has a wide range of usefulness, and dietitians will be interested to know of the many conditions where it may be used. Booth 21.

The Nutradiet Company, San Francisco, California. Nutradiet fruits and Nutradiet vegetables (packed without added sugar or salt) excel in two most important features: (1) Uniform, unsurpassed quality—guaranteeing appetite appeal for finicky patients. (2) The actual protein, carbohydrate and salt content stated on each tin gives dietitians definite, dependable analysis, instead of 5, 10, or 15 per cent classification. Booth 18.

Pattee's Practical Dietetics, Mount Vernon, New York. Booth 41.

Ralston Purina Company, St. Louis, Missouri. Ry-Krisp, The Whole Rye Wafer, made entirely from whole rye, will be served. Ry-Krisp is of particular value in wheat-free diets. Ralston Whole Wheat Cereal, rich in minerals and vitamins, and long a favorite cereal will be on display along with other products. Comprehensive research reports, compiled by our Research Laboratory are available, both on Ralston and Ry-Krisp. Whole grain charts and other material will gladly be supplied for clinical use. Booth 28.

W. B. Saunders Company, Philadelphia and London, will exhibit the latest books on Diet, Nutrition, and the allied subjects. One of the most important new books in this field will be on display, namely, Nutrition and Diet, by Dr. James McLester. Other outstanding texts and reference books which will be shown are: Wood and Weeks, "Fundamentals of Dietetics;" Friedenwald and Ruhrah, "Diet in Health and Disease," and Wilder's "Diabetic Primer."

John Sexton & Sons Company, Chicago, Illinois. Booth 16.

Emma Smedley, Media, Pennsylvania. Booth 3.

E. R. Squibb & Sons, Philadelphia, Pa., will introduce several new products. Among these are CITABS (citric acid tablets) for the preparation of acid milk; Elixir Cupriferrum, a mixture of copper and iron for use in the treatment of certain types of nutritional anemia; also Syrup Cupriferrum. They will also feature their full line of Vitamin Products:—Vitavose, Dextro-Vitavose, Viosterol in Oil—100 D. Cod Liver Oil with Viosterol—5 D, and Squibb's Cod Liver Oil, Plain and Mint-Flavored. Descriptive literature and samples will be available on request and competent representatives will be on hand to answer questions. Booth 26.

Standard Brands, New York, N. Y. Royal, the cream of tartar baking powder, has been synonymous with purity and wholesomeness for over fifty years. Dietitians rely on its uniform successful baking in their diet kitchens. And now—Royal sets another standard for quality and performance in its Gelatin Desserts—the quick setting kind. Six delicious fruit flavors for there's a new one—Lime. Both products will be in the exhibit booth of Standard Brands Incorporated, together with new and revised educational literature. Booth 14.

The Swartzbaugh Manufacturing Company, Toledo, Ohio. The safe, sensible, economical policy to follow in selecting electrical and technical equipment is to deal only with specialists in their fields of manufacturing, those having established reputation and who are financially strong. The Swartzbaugh Manufacturing Company, making the Ideal Food Conveyors, are in this class. Avoid mistakes, save time, insure satisfaction—equip with Ideals. Booth 39.

The United Fruit Company, Boston, Massachusetts, will exhibit bananas in progressive stages of ripening, and literature regarding the food value of this familiar yet newly-discovered fruit. Booklets and reprints will also be on exhibit so that registrants may select those they wish mailed to their home addresses. Booth 24.

American Home Economics Association. Over a thousand persons were registered at the twenty-third annual meeting of the Association held in Denver, Colorado, June 24 to 28, 1930.

The central theme of the meeting, "The Modern American Family and Its Home," was discussed from the point of view of both the children and the adults in the home. Speakers at the general sessions included Mr. A. L. Threlkeld, superintendent of city schools, Denver, Dean Margaret Justin,

president of the American Home Economics Association, Miss Martha Van Rensselaer, assistant director of the White House Conference on Child Health and Protection, Mr. John Nolen, architect and city planner of Cambridge, Massachusetts, and Professor Dwight Sanderson of Cornell University, who made a plea for a "science of the family."

At a special session devoted to the White House Conference on Child Health and Protection, the coöperation of home economics in the Conference was brought out under the chairmanship of Dr. Louise Stanley, chief of the United States Bureau of Home Economics and chairman of the subcommittee of the Conference on Family Life and Education.

At smaller group meetings special attention was paid to such phases of the family and its home as family relationships, family economics, the house, food and nutrition, and textiles and clothing. Speakers included Dr. Lee Vincent of the Merrill-Palmer School, Dr. Faith Williams of the United States Bureau of Home Economics, Mr. Bleecker Marquette of the Cincinnati Better Housing League, Dr. Mary Swartz Rose of Columbia University, and Mrs. Pauline Beery Mack of Pennsylvania State College.

There were also meetings of workers in such fields as elementary and secondary schools, colleges and universities, research, extension, social welfare, business, and homemaking.

Newly elected officers are: President, Miss Frances Swain, supervisor of home economics in the Chicago Public Schools: Vice-president, Miss Cora Winchell, Teachers College, Columbia University; and Secretary, Miss Frances Zuill, University of Iowa.

The 1931 meeting will be held in Detroit, Michigan, during the week of June 22.

The Albany Dietetic Association has recently organized and has elected the following officers for the ensuing year: President, Virginia Howard Ray, Albany General Hospital; Vice-President, Kathryn Margaret Marsh; Secretary, Edith Irene Strobel; and Treasurer, Anna Jane McInnes. A committee consisting of Jessie Cole, New York State Nutrition Specialist, Alice Ryder, Department of Home Economics, New York State College for Teachers, and Edith Strobel, Dietitian, Albany Hospital, was appointed to draft a constitution.

The Baltimore Dietetic Association held its May meeting at Goucher College. Officers for the coming year were elected as follows: President, Miriam Connelly, University of Maryland Hospital; Vice-President, Mary Diefenderfer, Towson State Normal School; Secretary, Ruth L. Hoover, Public School Cafeteria; and Treasurer, Vera M. Stemple, Public School Cafeteria. The program and membership committees met and formulated plans for the coming year.

Edith Reid, whose home is in Dunedin, New Zealand, and who is a former graduate of the Dietary Department of the Johns Hopkins Hospital, has returned as ward assistant after having spent the past few years as dietitian at the Wellington Hospital, New Zealand.

Joy Fitzsimmons has accepted a position as assistant dietitian in the Oriole Cafeteria of Baltimore.

Ernestine Becker of the School of Hygiene and Public Health of the Johns Hopkins University will give the lecture course to nurses in diet therapy, beginning with the fall semester.

The British Columbia Dietetic Association, with Ethel C. Pipes as President, has enjoyed interesting and instructive meetings. In January an interesting paper on "The Rôle of Diet in Arthritis" was given by Dr. Meekison. At the February meeting Mr. Mylett of the Canadian Pacific Steamships gave a talk on "Purchasing Food for the Ocean Liners, and the Preservation of Food on Long Trips." Miss Pipes then read a paper on tinned foods. Mr. Williams of the Canadian Pacific Railway Hotels addressed the March meeting on "Food Cost Accounting and Budgeting." At the April dinner meeting, Dr. Storey gave an interesting talk on "Diet in China." Officers for the coming year were elected as follows: President, Helen King, Royal Columbia Hospital, New Westminster; Vice-President, Dorothy Young, Vancouver General Hospital; Secre-

tary-Treasurer, Ellen Graham, St. Paul's Hospital; and Program Committee, The Misses Wyness, Lawson and Wright.

The Chattanooga-Hamilton County Dietetic Association have six members who are members of the national Association, and it is hoped to increase the membership. The first officers of this newly formed organization are: President, Mrs. John E. Gilbreath, City Nutritionist (Red Cross); Vice-President, Anna Leah Carpenter, Red Cross County Nutritionist; Treasurer, Pearl Haley, Supervisor Home Economics, City Schools; Secretary, Mary Tom Peacock, Dietitian, Children's Hospital. The county physician is very much interested in the organization and is helping to plan a program.

The Chicago Dietetic Association met in May to discuss the "Hospital Dietetian." Dr. Bert Caldwell, executive secretary of the American Hospital Association was the principal speaker. His subject was "The Hospital Dietitian." Anna E. Boller then spoke on the American Dietetic Association, discussing the early history of the Association and its aims and ideals. Sarah Elkin, Michael Reese Hospital, spoke on "Food Clinics." "The Status of the Dietitian" in the various types of hospitals was discussed by a representative of each. Estelle Nesbitt spoke of the city hospital, Mae Whitmer of the county, M. Kelvy of the state, and Katherine Mitchell Thoma discussed the problems of the general hospital.

At this meeting it was voted that the Association become a state association, following the recommendation of the American Dietetic Association.

The June meeting of the Association was entirely a social affair in order to give members the opportunity to become better acquainted with one another. The party was held at the Ida Noyes Hall on the campus of the University of Chicago, and was a most enjoyable affair.

The Cincinnati Dietetic Association held its final meeting of the year in June at the General Hospital. Election of officers was held. Ruth Senteff, Bethesda Hospital, was re-elected president; Elizabeth Gates, Holmes Hospital, was elected Vice-President; and Polly Cowan, Good Samaritan Hospital, was elected secretary and treasurer.

Myrtle E. Thornton, chief dietitian, Christ Hospital, has resigned because of ill health, and is at her home at Columbus, Ohio.

Fernetta Lusher has recently given up her position as Assistant dietitian at the Jewish Hospital and is spending the summer at her home in Greensburg, Indiana. She plans on doing graduate work this fall.

The marriage of Eleanor Tierney, head dietitian, Cincinnati General Hospital, and Dr. Arthur Franks, Akron, Ohio, took place June fourteenth. Gertrude Lauche, dietitian at the Hamilton County Tuberculosis Sanatorium, has been appointed to succeed Miss Tierney.

The Colorado Dietetic Association is a little over a year old, having been organized in August, 1929. Quarterly meetings held in Denver have been well attended and have proved a source of interest and inspiration to all. Luncheon at one of the Denver hotels, then the business meeting, and some interesting speaker, or a trip through one of the hospitals, has been the usual procedure.

In December the Association met in joint session with the Colorado Hospital Association and took charge of one afternoon's program. At the annual election of officers in July, Margaret T. Worner of the Modern Woodmen of America Sanatorium at Woodmen, Colorado, was re-elected President. Plans are being made for affiliation with dietitians of Texas, New Mexico, and Arizona, with the hope that there will be occasional inter-state meetings. The membership at present is thirty-five, which includes nearly all the dietitians of the states.

The Dayton Dietetic Association (Ohio) is being formed with Miss Bollender of the Miami Valley Hospital as an active organizer.

The District of Columbia Dietetic Association has elected the following officers for the coming year: President, Grace Bulman, U. S. Veterans' Bureau; Vice-President, Ruth Atwater, National Canners Association;

Secretary, Lurena Perrine, Garfield Hospital; Treasurer, Mildred Parker, St. Elizabeth's Hospital; Program, Grace Hunter, Walter Reed Hospital; Hospitality, Elsie Fitzgerald, Episcopal Hospital; Affiliation, Blanche Fickle, Municipal Hospital; Publicity, Doris Sutton, St. Elizabeth's Hospital; and Membership, Lurena Perrine and Agnes Kacerovsky.

Grand Rapids Dietetic Association. Miss Clark, chief dietitian of Blodgett Memorial Hospital, has been working in connection with the Consumers Research Department on the problem of canned peaches.

Elizabeth Whipple, a Simmons College graduate, has completed her student dietetic study under S. Margaret Gillam at University Hospital, Ann Arbor. She worked with Miss Clark at Blodgett Memorial Hospital during the month of July while Miss Mills, assistant dietitian, was on vacation.

Ada Hubley of Battle Creek, a recent graduate of Butterworth Hospital Dietetic School, is doing summer relief work at University Hospital, Madison, Wisconsin.

Helen Feuerstein, a graduate of Butterworth Hospital Dietetic School, has been managing the Herpolsheimer Employee Cafeteria since May 1st, taking the place of Mrs. William L. Rodgers, who is giving up active work in this field.

A luncheon was enjoyed by the Michigan Dietetic Association as guests of the Michigan Hospital Association during a recent convention in Grand Rapids. The Grand Rapids Dietetic Association entertained the Michigan Dietetic Association with a luncheon at the Grand Rapids City Club on Thursday of the convention week.

The Iowa State Dietetic Association held its second meeting June 18th and 19th at the University Hospital, Iowa City. A permanent constitution was adopted. The temporary officers will continue to serve until the next meeting, which will probably be held in Des Moines in November. At that time permanent officers will be elected.

Members of the Administrative and Medical Staff of the hospital provided a very interesting and educational program. Mr. R. E. Neff, Administrator of the University Hospitals talked on the "Function of the Hospital Dietary Department." Dr. F. M. Smith, Professor and Head Department of Theory and Practice of Medicine discussed "The Irritable Colon." "The Diabetic Child" was discussed by Dr. Julien D. Boyd, Assistant Professor, Department of Pediatrics. The trip with Dr. R. B. Gibson, Associate Professor of Biochemistry and Director of the Pathological Chemistry Laboratory, as he made rounds of the diabetic patients was especially interesting. Dr. H. A. Matill, Professor of Biochemistry discussed "Recent Advances in Nutrition." "The Purchasing Problem" was ably discussed by Mr. C. P. Slater, Assistant Purchasing Agent of the University of Iowa. Several graduate students of the Nutrition Department gave reports of their research work.

Bernice L. Keim formerly of the University Hospital has accepted a position as administrative dietitian of Bell Memorial Hospital, Kansas City, Kansas.

Nelda G. Ross, formerly of the University Hospital has accepted a position with the New York Presbyterian Hospital.

The Kansas City Dietetic Association held its last meeting of the season in May at the Riviera Apartment Hotel. After dinner a report of the meeting held at Columbia, Missouri, May 18, to form the Missouri State Dietetic Association, was made by Katherine Lorimer of the Business and Professional Woman's Club Tea Room. Miss Ollis reviewed the origin and progress of the local organization.

Miss Beeler, manager of the dining room at the Federal Reserve Bank, spent May and June travelling in Europe.

Ethel Ollis of the Research Hospital left June 25 for New York City to attend summer school at Columbia Univeristy. She stopped at Niagara Falls and went up the St. Lawrence River on the trip.

Edith Nonken Cross, of Alfred Benjamin Dispensary, enjoyed a motor trip to the Yellowstone National Park, during July.

The Little Rock Dietetic Association was organized at the same time as the Memphis

Association, and has had very enthusiastic meetings. In June, before a medical meeting in Little Rock, Fairfax Proudfit spoke on "The Relation of the Dietitian to the Hospital, and Her Coöperation with the Medical Staff.

Massachusetts Dietetic Association. At the February meeting of the Massachusetts Dietetic Association Dr. Walter Eddy of Teachers College, Columbia University, New York was the guest of honor at a dinner given by the Association. After the dinner Dr. Eddy gave an interesting talk on some of the newer experiments in the vitamin field.

At the March Meeting, Dr. George Bigelow, Commissioner of Public Health of Massachusetts spoke on "The Place of the Nutrition Worker in Public Health."

At the April meeting Dr. Fairhall of Harvard gave an excellent summary of the work to date on mineral metabolism.

A field trip was enjoyed by members of the Association in March when they visited the modern store house of the S. S. Pierce Company.

Another trip of much interest was the early morning visit to the Boston Merchants Fruit and Vegetable Exchange in South Boston. The dietitians reached the Exchange at 6:45 a.m. which gave them an opportunity to visit the buildings and inspect the fruit and vegetables before the wholesale buyers arrived at 7:00 a.m. There are three buildings in this Exchange, and in the largest one as many as one hundred and twenty-five carloads of produce have been stored at one time.

Ellen Riley, formerly at the White House, Washington, D. C., has accepted a position with one of the Alice Foote MacDougall Restaurants, in New York City.

Rosina Vance has returned to the Massachusetts General Hospital to take charge of the dietetic department of the Baker Memorial Hospital.

Hilda French, chief dietitian at the New England Deaconess Hospital, has also taken over the dietary department of the Palmer Memorial Hospital.

Frances Chadwick, former dietitian at Westbrook Seminary, Portland, Maine, is now assistant dietitian at the Cambridge Hospital.

Elizabeth Fellows Clinton has recently been appointed assistant dietitian at the Faulkner Hospital, with Grace Eliott as chief dietitian.

The Memphis Dietetic Association was organized early in the year with the following officers: President, Fairfax Proudfit; Vice-President, Miss Conyers; and Secretary and Treasurer, Blanche Mock. In April the association held a joint meeting with the National Kindergarten Association in Memphis. Kindergarten workers from all parts of the country gave interesting talks.

Fairfax Proudfit in spending the summer at Camp A M C, Lake Port, N. H., where she will work on her new text, which will be released by the press next year.

The Milwaukee Dietetic Association held a joint dinner and business meeting in May for the purpose of electing officers and making arrangements for the coming year. This meeting completed the second year for the Association. The meetings are held on the first Monday of every month from October through May. A Committee elected by the President, having made out the year's schedule, submits this to the Association to be acted upon. This year's program was divided into three business meetings, two field trips, one lecture and two social meetings. At present, the Association, which has twenty members, has confined its membership to hospital dietitians.

Nell Clausen, Children's Hospital, was elected President, Ada B. Lothe of the County Institutions having held that position for the past two years.

The Minnesota Dietetic Association held its first formal dinner meeting in May at the St. Paul Athletic Club. The seventy-five guests present included dietitians from the Twin Cities, visiting dietitians from the Mayo Clinic, and several hospital superintendents. Among the guest speakers was Dean Lyon from the medical college of the University of Minnesota. He complimented the dietitians on the work they have done

through the Association and emphasized the amount of work yet to be accomplished.

Mrs. Carl Lomen of Nome, Alaska, told of her first trip to Alaska, and described the conditions under which the vast Lomen reindeer herds are being cared for. She explained the commercial importance and use of reindeer meet today. Through her kindness, a roast of reindeer meat was served at the banquet.

Dr. C. Robert Moulton, who is with the Institute of American Meat Packers of Chicago, gave in detail his experiences with an all meat diet, and the results that such a diet can bring.

Mrs. Winifred Howard Erickson from Ancker Hospital, St. Paul, gave a brief résumé of the history of the Minnesota Dietetic Association, and also the American Dietetic Association. This was the first time such data on the growth of the organizations had been assembled, and it was of much interest to note the progress made.

The Association was entertained in June at the Fairview Cottage, Lake Minnetonka, with Ruth Melges, Fairview Hospital, Minneapolis, as hostess. Games, boating, and a delightful luncheon made it a very pleasant day.

The officers elected at the annual business session were as follows: President, Harriett S. Warmington, U. S. Veterans' Hospital, Fort Snelling; Vice-President, Florence Sperry, Midway Hospital, St. Paul; Recording Secretary, Jeanette Goldthorpe, University of Minnesota; Corresponding Secretary, Dixie Rudberg, Ancker Hospital, St. Paul; Treasurer, Clara Webb, Bethesda Hospital, St. Paul.

The President and the Corresponding Secretary are serving their second term of office.

Jeanette Goldthorpe has resigned as chief dietitian at the General Hospital, Minneapolis, and will resume her studies at the University of Minnesota. Her assistant, Miss Goff, has taken her place.

The Missouri State Dietetic Association has elected the following officers: President, Ruth M. Cooley, Jewish Hospital, St. Louis; Vice-President, Margaret Hessler, University of Missouri, Columbia; Secretary, Eugenia Martin, Barnes Hsopital, St. Louis; Treasurer, Ethel M. Ollis, Kansas City General Hospital, Kansas City.

The New York Association of Dietitians discussed at its May meeting "The Training of the Student Dietitian." The meeting developed into an interesting round table discussion. Training of the student dietitian in menu making, purchasing, and the supervision of employees were a few of the subjects discussed.

The officers of the Association for the coming year are: President, Emma Feeney, Pratt Institute; Vice-President, Eva Thalman, Women's City Club; Secretary, Dorothy DeHart, Roosevelt Hospital; and Treasurer, Mary E. Wyckoff, Nursery and Children's Hospital.

The Association made a trip to the Walker-Gordon model farm at Plainsboro, N. J., in June.

Lenna F. Cooper, for many years dean of the home economics department of the Sanitarium and Battle Creek College, and more recently food director of the University of Michigan, at present supervising dietitian at the Montefiore Hospital, New York City, was given a tea by the Alumnae Association of the Battle Creek College prior to her departure for the East. During the afternoon Ida Jean Kain in behalf of the alumnae members of the department, presented Miss Cooper with a book containing the names of all the contributors, together with a check covering all the expenses of a Mediterranean cruise, as a token of their appreciation and esteem for Miss Cooper. Miss Cooper was largely responsible for placing the home economics department of Battle Creek College on its present substantial basis, and during her many years of service, scores of young women, now pursuing their vocation in various countries of the world, received their training under her direction.

Jean Bullis, recent graduate of University of Toronto and Fifth Avenue Hospital, New York City, has been appointed second assistant at Vassar Brothers Hospital, Poughkeepsie, New York.

Ohio Dietetic Association. The ninth annual meeting of the Association was held in April in Cincinnati. The committee in charge of program and arrangements was composed of Ruth O. Reineke, Ruth Sentiff and Eva Ylvisaker. The address of welcome was given by Myrtle Thornton, President of the Association. Following this, Dr. C. A. Mills, Associate Professor of Medicine, University of Cincinnati, gave a talk on "Dietary Differences in Various Countries." Dr. Mills has recently returned from two years at Peking, China, University. "The Relation of the Dietitian to the School of Nursing" was discussed by Helen Leader, Superintendent of Nurses, Christ Hospital, Cincinnati. Henry E. Germann, D.D.S., spoke on "Dental Health and Diet" and Helen Gillespie, R.N., Supervisor of the Formula Room, Children's Hospital, Cincinnati, followed with a talk on "The Practical Aspects of Artificial Feeding." In the evening a banquet was held in the ballroom of the hotel. Anna Boller, President of the American Dietetic Association, and Elizabeth Dyer, Director of the School of Household Administration, University of Cincinnati, were guests of honor. Miss Boller gave a very interesting account of the origin, growth, aims and aspirations of the American Dietetic Association. Miss Dyer in her talk stressed the value of publicity to the dietitian. At a breakfast meeting the next day Helen Mallory, Mt. Sinai Hospital, Cleveland, led a Round-Table discussion. Following this Dr. C. C. Fihe, Internist, Cincinnati, gave a paper on the "Modern Dietetic Treatment of Obesity" and Dr. Leon Schiff, Department of Medicine, University of Cincinnati, spoke on "The Newer Aspects of the Treatment of Pernicious Anemia." At the business meeting the election of officers took place. Myrtle E. Thornton, Christ Hospital, Cincinnati, was re-elected president; Ruth O. Reineke, Cincinnati, consulting dietitian, elected vice-president; Lulu Winans, Youngstown Hospital, Youngstown, elected secretary; Polly Cowan, Good Samaritan Hospital, Cincinnati, elected treasurer. The matter of affiliation with the American Dietetic Association was taken up. Anna Boller explained methods of accomplishing this. A committee composed of Ruth O. Reineke, Cincinnati, Madeleine Tobias, Columbus, and Ruth Sentiff, Cincinnati, was appointed to revise the constitution of the Ohio Association and, after approval, to submit it to the affiliation committee of the American Dietetic Association.

Dietitians Association of Philadelphia. The Executive Committee meetings have been made most enjoyable now that the members have been acting as hostesses for the various meetings. In January, Marjorie Bacheller entertained the members at her apartment. Two other meetings have been charming dinners; the first was given by Zelvetta Lemmon in March, and the second by Rose Baker, the President, in May. In June there was an unexpected picnic supper at Dorothy Lewis' apartment in Ocean City while at the July meeting, a buffet supper was served at May Vincent's in Wallingford, Pennsylvania. The plans for the Friendship Dinner, at which the Philadelphia Association will act as hostesses, are maturing rapidly, the tentative date being January 24th and the possible place of meeting the Benjamin Franklin Hotel.

Grace Godfrey, Director of Home Economics at Drexel Institute, sailed for Europe in June and will not return until September.

May Baker, dietitian at Ellis College, Newtown Square, with her sister Lillian Baker of Kansas, spent a delightful summer visiting relatives in France and England.

The former chief dietitian at the Presbyterian Hospital, Marion Monkley, was married Saturday, July fifth, to Dr. Morley Allan Jull. Their wedding trip took them abroad for the summer, but they will return in the autumn to make their home in Beltsville, Maryland.

The President, Rose T. Baker, formerly Assistant Director of Home Economics at Drexel Institute, has accepted the position of Director of Commons at Phillips Academy, Andover, Massachusetts, which will necessitate her traveling by airplane for the monthly

meetings of the Dietitians' Association. While the members are sorry not to have her right in our midst, they are indeed grateful that she has consented to remain in charge for at least another year.

Leta Maher spent the summer camping in Maine.

The Porto Rico Dietetic Association. The dietitians of the Island met in May at the School of Tropical Medicine to form a local association. Proposed qualifications for members are the same as those of the American Dietetic Association. Members of the Executive Committee were elected as follows: President, Mrs. Rita R. Lang; Vice-President, Bertha Cabanillas; Secretary-Treasurer, Alice Miller; Representative for the three-year course, Mrs. Josefa Bursian; and Representative for the two-year course, Mrs. Zenaida Shepard.

The Rochester Dietetic Association executive committee recently worked on the formation of a New York State Dietetic Association. Invitations were sent to dietitians throughout the state. A state association was organized with Blanche Bohach, of Rochester General Hospital, as President; Virginia Howard Ray, of Albany Hospital, as Vice-president; Mary Northrop, of New York City, as Treasurer; and Anne H. Steward of Buffalo General Hospital, as Secretary.

Natalie Biglow resigned her position with the Eastman Kodak Company to accept one with the Colonnade Lunch in Cleveland.

Effie May Winger and Esther Rhodes spent their vacations in European travel.

The Association held the annual picnic June 5th at Clifton Springs with the dietitians at Clifton Springs Sanitarium acting as hostesses.

Scranton Dietetic Association (Pennsylvania). A recent meeting was called at which every hospital dietitian in Scranton was present. After a brief meeting, officers were elected, committees appointed, and plans made for regular meetings commencing in October. The local group hopes to assist in the formation of a state association. The following officers were elected: President, Dorothy O'Brien; Vice-President, Genevieve Clune; Secretary-Treasurer, Mary E. Huhn. Members present who became charter memmers were: Dorothy O'Brien, Genevieve Clune, Royna Wilcox, Mary Taft, Esther Wilson Watrous, Frances Brauer, Clare Harding, Marie H. O'Hara, Margaret Briggs, Jeanne M. Griffiths, Jane Tinklepaugh, and Mary E. Huhn.

The Southeastern Michigan Dietetic Association held a combined business and social meeting in May at the Children's Hospital, Detroit. The following officers were elected: President, Anna E. Rogers; Vice-President, Hortense Allen; Secretary, Sophie Halsted; Treasurer, Julia Knowles; and Executive Member, Ina Stevenson. Following the business meeting, a delightful luncheon was served by the members of the staff of the Children's Hospital.

The Tidewater Dietetic Association (Norfolk, Va.) has presented a copy of its constitution to the State Association. This constitution has been approved by the latter.

The Tri-State Dietetic Association (Arkansas, Tennessee, and Mississippi) was organized in the early spring with the following officers: President, Fairfax Proudfit, Memphis; Vice-President, Grace Leve, Little Rock; and Secretary and Treasurer, Blanche Mock, Memphis. The first meeting of the Association was held at the Baptist Nurses' Home. Dr. Edward Clay Mitchell, baby specialist, spoke on "Feeding the Pre-school Child." The second meeting was held in Memphis during May at the Hotel Peabody. A business session was held in the morning, a luncheon at noon in the main dining room, and a program in the afternoon, with Dr. Chaney of Memphis as speaker.

The Virginia State Dietetic Association has applied for national affiliation.

The Western Pennsylvania Dietetic Association, formerly known as the Allegheny County Dietetic Association, is considering affiliation with the national organization.

Charlotte Addison is an active worker in this group.

PRESENT STATUS OF STATE AFFILIATION PROGRAM*

STATE ASSOCIATIONS AFFILIATED UNDER OLD PLAN

California: ELIZABETH HAYWARD, California Fruit Growers' Exchange, Los Angeles.
Minnesota: HARRIET WARMINGTON, U. S. Veteran's Hospital, Ft. Snelling.
Massachusetts: MARGARET MCGOVERN, Boston City Hospital, Boston.
Indiana: MARGARET MARLOWE, Methodist Hospital, Indianapolis.
Washington: DOROTHY GOODRICH, Children's Orthopedic Hospital, Seattle.
District of Columbia: GRACE C. BULMAN, U. S. Veteran's Bureau, Washington, D. C.
British Columbia: HELEN KING, Royal Columbia Hospital, New Westminster, B. C.
Ontario: CLARIBEL HAZLETT, Christie St. Hospital, Toronto.
Quebec: H. L. HUNTER, 719 University Street, Montreal.

STATE ASSOCIATIONS NOW APPLYING FOR AFFILIATION

Colorado: CORA E. KELLEY, Colorado State Hospital, Pueblo.
Virginia: GERTRUDE BROWN, McGuire Clinic, St. Luke's Hospital, Richmond.
Oregon: KATHARINE DE WITT, Multnomah County Hospital, Portland.

STATE ASSOCIATIONS BEING ORGANIZED

Iowa: DR. KATE DAUM, University Hospitals, Iowa City.
Missouri: RUTH COOLEY, Jewish Hospital, St. Louis.
Michigan: Name of new president not available.
Tri-State Dietetic Association: FAIRFAX T. PROUDFIT, 1918 Central Avenue, Memphis.

PLANS ACTIVELY UNDER WAY FOR FORMATION OF STATE ASSOCIATIONS

Illinois: MINNIE KALSEM, Cook County Hospital, Chicago. (Chicago Dietetic Association being reorganized. At present affiliated, but as a local association.)
New York: (Rochester Dietetic Association at present affiliated, but as a local association) EFFIE WINGER, Rochester General Hospital, Rochester.
Ohio: (A tentative constitution has been sent in for approval.) Special Affiliation Committee: MRS. RUTH O. REINECKE, 2601 Bellevue Avenue, Cincinnati; RUTH SENTIFF, Bethesda Hospital, Cincinnati; MADELEINE TOBIAS, Columbus.
Nebraska: Names of officers not yet available. Notice of proposal organization sent in by Margaret Fedde, University of Nebraska, in a letter dated June 16, 1930.
Porto Rico: MRS. RITA LANG, School of Tropical Medicine, San Juan.
Western Pennsylvania: CHARLOTTE ADDISON, Western Pennsylvania Hospital, Pittsburg.

OLD STATE ASSOCIATIONS NOT AFFILIATED

Rhode Island: CLARA WATKINS, Butler Hospital, Providence. The Secretary reports that there are too few dietitians in the State eligible for American Dietetic Association membership to warrant organizing an affiliated State Dietetic Association at present.

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* July 14, 1930.

Connecticut: ISABEL HUNTER, Bridgeport Hospital, Bridgeport. A letter from Eleanor S. Warren, Hartford Hospital, reports present group contains too few eligible to American Dietetic Association membership to insure a strong affiliated state association.

EXISTING LOCAL DIETETIC ASSOCIATION

Baltimore: ALMA BERING, Sheppard & Enoch Pratt Hospital, Towson, Maryland.
Milwaukee: ADA B. LOTH, Milwaukee County Hospital, Milwaukee, Wisconsin.
New York City: MARY NORTHUP.
Saint Louis: EUGENIA MARTIN, Barnes Hospital, St. Louis, Missouri.
Kansas City: MRS. CLARENCE CROSS, 2744 Gillham Road, Kansas City, Missouri.
Cincinnati: RUTH SENTIFF, Bethesda Hospital, Cincinnati, Ohio.
Cleveland: MARY T. TERRY, City Hospital, Cleveland, Ohio.
Dayton: LAURA ALTA BOLENDER, Miami Valley Hospital, Dayton, Ohio.
Grand Rapids: ARDIS OLIVE BULL, Grand Rapids, Michigan.
Southeastern Michigan: MARY HARRINGTON, Harper Hospital, Detroit
Philadelphia: ROSE T. BAKER, Drexel Institute.
Scranton: DOROTHY O'BRIEN, Mercy Hospital, Scranton.
Dallas: RUTH COOPER, 4826 Worth Street, Dallas, Texas.
El Paso: Names of officers not available.
Louisville: MARTHA OLSON, Louisville City Hospital, Louisville, Kentucky.
Tidewater: BERTHA E. IDE, Norfolk Protestant Hospital, Norfolk, Virginia.
Minot: ETHEL E. CASEY, State Teacher's College, Minot, N. Dakota.
Indianapolis: GRACE MILLER, Garfield Park Hospital, Indianapolis, Indiana.
Chattanooga-Hamilton County: MRS. J. E. GILBREATH, City Red Cross Nutritionist, Chattanooga, Tennessee.
Albany: VIRGINIA HOWARD RAY, Albany General Hospital, Albany, New York.

The following dietitians are actively at work with plans for organization of local or state dietetic associations:

HELEN E. CARMODY, St. Mary's Hospital, Green Bay, Wisconsin.
JESSIE E. CHICK, Ambler Heights, Asheville, North Carolina.
GLADYS L. STODDARD, University Hospital, Augusta, Georgia.
MYRTLE LARSON, Iowa Lutheran Hospital, Des Moines, Iowa.
CATHARINE L. PALMER, Reading Hospital, Reading, Penna.
WINIFRED CUSHING, Paterson General Hospital, Paterson, N. J.

The following dietitians report too small a number of dietitians in their communities to warrant organization of a local group now:

EDNA H. BROWN, Evansville, Indiana.
BERNICE LANE, Peoria, Illinois.

At the meeting of the American Dietetic Association in Toronto there will be a special dinner on Monday evening for the discussion of various problems connected with the affiliation program. Each local and state dietetic association is urged to send one or more delegates to this dinner who are authorized to express the opinion of their organization

on the problems to be discussed. Will each group send immediately to the office of the American Dietetic Association the names of delegates who will attend this dinner?

From correspondence with various organizations over the country the following are some of the disturbing problems:

1. Whether or not all active members of an affiliated state association *must* be members of the American Dietetic Association by September, 1931.

2. The collection of dues to the American Dietetic Association by the treasurer of an affiliated state association. Our present plan involves the continued payment by an individual member of $5 annual dues which includes Journal subscription. If these dues are remitted through the state treasurer the treasurer needs only to send $4.50 of this money to the national treasurer. The other .50 may be kept as a fund for bearing expenses of the state office. If this plan does not seem feasible, we will be glad to have suggestions from the members.

3. Dietitians in sparsely settled states, or in communities where very few of the dietitians are eligible to membership in the American Dietetic Association have written that formation of state associations seems not worth while because of scarcity of eligible people. A suggestion has been made that groups of states combine together to form an affiliated association. We would be glad to have a discussion of this problem.

4. There are certain states that are so constructed geographically that it is much more practical for dietitians in one part of the state to affiliate themselves with organizations in a nearby state, such as Wheeling, West Virginia, with Pittsburgh and Western Pennsylvania, than for the Wheeling dietitians to attempt to belong to a West Virginia Dietetic Association. Also the dietitians in Pittsburgh feel that by such an organization they would be benefited much more than by attempting to connect up with an Eastern Pennsylvania organization. Similar problems will undoubtedly present themselves in other parts of the country.

5. Does every member of the American Dietetic Association living in a given state automatically become an active member of the state association, or is membership optional with her?

6. In what ways can the American Dietetic Association be of most help to the state and local groups, and in what way can state and local groups best serve the American Dietetic Association?

7. The problem of negro membership in state and local organizations has come up in connection with several organizations.

MARTHA KOELME.

THE AMERICAN DIETETIC ASSOCIATION

OFFICERS, 1929–30

Honorary President, LULU GRAVES, 7 E. 54th St., New York City
President, ANNA E. BOLLER, Central Free Dispensary, Rush Medical College, Chicago
President-Elect, S. MARGARET GILLAM, University Hospital, Ann Arbor, Mich.
Vice-President, MARTHA KOEHNE, University of Tennessee, Knoxville, Tenn.
Second Vice-President, THELMA TUBBS CURRIER, Peter Bent Brigham Hospital, Boston
Secretary, PHYLLIS D. ROWE, Johns Hopkins Hospital, Baltimore
Treasurer, KATHERINE MITCHELL THOMA, Michael Reese Hospital, Chicago

SECTION CHAIRMEN

Administration, LENNA F. COOPER, 84 North Ave., Battle Creek, Michigan
Diet Therapy, HELEN ANDERSON, Scripps Metabolic Clinic, La Jolla, Calif.
Education, RUTH COOLEY, Jewish Hospital, St. Louis, Mo.
Social Service, CLYDE SCHUMAN, 1707 Rhode Island Ave., N. W., Washington, D. C.

ADVISORY COMMITTEE

MALCOLM T. MACEACHERN, M.D., Director Hospital Activities, American College of Surgeons, Chicago, Ill. 1930
THERESA A. CLOW, Director of Residences, Young Womens' Christian Association, Chicago, Ill. 1931
N. P. COLWELL, M.D., Secretary, Council on Medical Education and Hospitals, American Medical Association, 535 N. Dearborn St., Chicago, Ill. 1932

JOURNAL BOARD

KATE DAUM, University Hospital, Iowa City, Iowa 1930
MARJORIE HULSIZER COPHER, 4471 Forrest Park Blvd., St. Louis, Mo. 1931
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